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

REGION III

Reports No. 50-254/80-25; 50-265/80-26

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 & 2

Inspection at: Quad-Cities Site, Cordova, IL

Inspection Conducted: October 20, 1980, through November 24, 1980

Inspectors: R. L. Spessard for N. J. Chrissotimos 11/28/80

R. L. Spessard for S. G. DuPont 11/28/80

Approved by: R. L. Spessard, Chief 11/28/80
Reactor Projects Section 1

Inspection Summary

Inspection on October 20 through November 24, 1980 (Reports No. 50-254/80-25; 50-265/80-26)

Areas Inspected: Routine, unannounced Resident Inspection of Licensee Action on Previous Inspection Findings, Operational Safety Verification, Long Term Shutdown Activities, Monthly Maintenance Observation, Monthly Surveillance Observation, Licensee Event Reports Followup, IE Circular Followup, IE Information Notice Followup, Plant Scrams, Refueling Activities, Followup on Headquarters Request, Fire Protection and Inspection of Licensee's Test and Experiments Program. The inspection involved a total of 264 inspector-hours onsite by two NRC inspectors including 48 inspector-hours onsite during off-shifts.

Results: Of the 13 areas inspected, no items of noncompliance were identified in 12 areas; two items of noncompliance were identified in one area - failure to perform surveillance, paragraph 7, - inadequate testing, paragraph 7.

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 foreman, reactor operators, technical staff personnel and quality control personnel.

*Denotes those present at the exit interview on November 24, 1980.

2. Licensee Action on Previous Inspection Findings

(Closed) Open inspection item (50-254/80-12-01; 50-265/80-15-01). The Licensee has established a method in which timely dissemination of information is provided to the operators, with regards to modifications.

No further concerns were identified.

(Closed) Open inspection item (Cll 50-254/80-01-02). The inspector verified that the modification of the ADS valve air supply line on Unit 1 was completed.

No further concerns were identified.

(Closed) Open inspection item (Oll 50-254/80-10-02). The inspector witnessed the ultrasonic testing of Unit 1 Jet Pump Beam Bolt Assemblies. No indications were revealed.

No further concerns were identified.

(Closed) Open inspection item (Oll 50-254/80-10-01). The inspector verified the installation of the G. E. 105X Relays.

No further concerns were identified.

(Closed) Open inspection item (Oll 50-254/78-28-01; 50-265/78-29-01). The Mercoid Switch problems appear to have been resolved and action record 4-75-25 closed.

No further concerns were identified.

(Closed) Open inspection item (Dll 50-254/80-12-03; 50-265/80-15-03). The inspector reviewed the Licensee's response to IEB 80-17 item 6.c. 'perform a 50.59 review to increase SBLC flow to the maximum consistent with safety.' The inspectors review was also included in the Safety Evaluation Report requested by NRR.

No further concerns were identified.

(Closed) Open inspection item (Dll 50-254/80-12-05; 50-265/80-15-05). The inspector reviewed the Licensee's response to IEB 80-17 supplement 1. The inspectors review was also included in the Safety Evaluation Report requested by NRR.

No further concerns were identified.

3. Operational Safety Verification Unit 2

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the month of November, 1980. The inspector verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of Unit 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 month of November, 1980, the inspector walked down the accessible portions of the Unit 2 SBLC and Unit 2 Control Rod Drive systems to verify operability. The inspector also witnessed portions of the radioactive waste system controls associated with radwaste shipments and barreling.

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.

4. Inspection During Long Term Shutdown

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during

the month of November, 1980. The inspector verified surveillance tests required during the shutdown were accomplished, reviewed tagout records, and verified applicability of containment integrity. Tours of Unit 1 Reactor building accessible areas, including exterior areas were made to make independent assessments of equipment conditions, plant conditions, radiological controls, safety, and adherence to regulatory requirements and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector observed plant housekeeping/cleanliness conditions, including potential fire hazards, and verified implementation of radiation protection controls. 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 reviewed the licensee's jumper/bypass controls to verify there were no conflicts with technical specifications and verified the implementation of radioactive waste system controls. The inspector witnessed portions of the radioactive waste systems controls associated with radwaste shipments and barreling. Tours of the Torus and Drywell were also included.

No items of noncompliance were identified.

5. 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

WR-Q01290	Reactor Feed Pump Discharge Valve
WR-Q03692	Acoustic Monitor (Change Feed)
WR-Q05043	Drywell/Torus Vacuum Breaker
WR-Q05818	Drywell Snubbers
WR-Q07076	Protective Relays Bus 14-1
WR-Q07077	Protective Relays Bus 13-1
WR-Q07411	Electromatic Valve 1-203-3B
WR-Q07567	ECCS Suction Header Screens
WR-Q07643	SRM Channel 23
WR-Q07701	RHR Suction Valve

Unit 2

WR-Q04352	RHR Pipe Hanger
WR-Q07399	250v Battery Charger
WR-Q07706	Reactor Building Ventilation Isolation Valve
WR-Q07736	Core Spray Suction Valve
WR-Q08428	Electromatic Valve 2-203-3C
WR-Q08493	Electromatic Valve 2-203-3C

Unit 1/2

WR-Q01369	Rebuild Spare Safety Valve
WR-Q06161	Rebuild Spare Control Rod Drive
WR-Q07274	Spare CRD 111 Valve
WR-Q08261	½ Diesel Generator Cooling Water Pump

Following completion of maintenance on the 2A Core Spray Suction Valve and Unit Control Rod Drive Hydraulic System, the inspector verified that these systems had been returned to service properly.

No items of noncompliance were identified.

6. Monthly Surveillance Observation

The inspector observed technical specifications required surveillance testing on the Unit 2 SBLC Demineralizer Recycle 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 test activities: Unit 2 Core Spray Valve and Pump Operability, Unit 2 Scram Time Testing and Unit 1 Control Rod Friction Testing.

No items of noncompliance were identified.

7. 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 1

RO 80-21, dated September 1, 1980, Main Steam Isolation Valve leakage in excess of 11.5 SCFH limit during Local Leak Rate Testing.

RO 80-25, dated September 13, 1980, inspection revealed crack indications in welds on the "A" and "B" Core Spray Loops. Detailed evaluations are included in IE Inspection Reports 50-254/80-29 and 50-265/80-30.

Unit 2

RO 80-21, dated September 14, 1980, while performing surveillance on Core Spray, Suction Valve MO-2-1402-3A would not reopen from the Control Room. The cause was attributed to the Torque Switch sticking on the motor operator.

RO 80-22, dated October 5, 1980, Main Steam Isolation Valves exceeding closure times prescribed in Technical Specifications.

RO 80-24, dated October 10, 1980, RHR Containment Cooling Valve failure during Operability Test.

RO 80-27, dated October 24, 1980, 2C RHR Pump failed to start during Operability Surveillance.

In regards to RO 80-27, during the RHR Pump Operability portion of surveillance, QOS 6600-S1, the 2C RHR Pump failed to start. The cause of this occurrence was discovered by the Licensee to be a misadjusted limit switch on the Suction Valve Motor Operator. The limit switch had been incorrectly adjusted on October 22, 1980, when the valve operator had been replaced. The valve had been returned to service and stroked three times without any further testing performed on the valve to pump permissive interlocks. This is contrary to Technical Specification 6.2.A.7 in that detailed written procedures for surveillance and testing systems and components involving the safety of the facility shall be prepared, approved and adhered to, and is considered an item of noncompliance.

Prior to the conclusion of the inspection, the inspector reviewed the Licensee's corrective action which included additional training and testing specifications following maintenance on safety-related valves, which utilize interlocks necessary for system operation. As a result of the review, the inspector has no further concerns and therefore no further response to this noncompliance is required.

RO 80-28, dated October 24, 1980, inoperable 1/2 Diesel Generator due to failure of the cooling water pump and performing the surveillance on the incorrect bus.

In regards to RO 80-28, after discovering that the 1/2 Diesel Generator was inoperable due to the 1/2 Diesel Generator Cooling Water Pump failure, the surveillance testing required for an inoperable Diesel Generator was performed. The required surveillance was performed immediately on the ECCS systems supplied by the 4kv Bus 23-1, whose emergency power supply is the 1/2 Diesel Generator. The following day, October 24, 1980, it was discovered that the previous surveillance had been performed on the incorrect bus. The surveillance should have been performed on the 4kv Bus 24-1, which is supplied by the Unit 2 Diesel Generator. This is contrary to Technical Specifications 6.2.A.7 in that detailed written procedures for surveillance of systems and components that involve the safety of the facility shall be prepared, approved, and adhered to, and is considered an item of noncompliance.

Prior to the conclusion of the inspection, the inspector reviewed the Licensee's corrective action which included a change in the procedure for Diesel Generator surveillance. As a result of this review, the inspector has no further concerns and therefore no response to this item of noncompliance is required.

The combination of events described in RO 80-27 and RO 80-28 led to operation in a degraded mode. This condition existed undetected for 23 hours. Although Technical Specification limits were not exceeded, the serious nature of the event should be recognized. The inspector discussed his concerns to plant management in regards to this matter in a special meeting. Licensee management acknowledged the inspector's concerns and announced that in addition to immediate corrective action, a formal systematic study would begin to determine the circumstances which led to the event to prevent recurrence.

Except as described, no other items of noncompliance were identified.

8. IE Circular Followup

For the IE Circulars listed below, the inspector verified that the Circular was received by the licensee management, that a review for

applicability was performed, and that if the circular were applicable to the facility, appropriate corrective actions were taken or were scheduled to be taken.

IE Circular 80-18, dated August 22, 1980, 10 CFR 50.59 Safety Evaluations for changes to radioactive waste treatment systems.

The Licensee conducts 50.59 reviews for all modifications and Appendix I Technical Specifications submittals addresses this.

The inspector has no further concerns.

IE Circular 80-21, dated October 8, 1980, Regulation of Refueling Crews.

The inspector verified that individuals responsible for and participating in refueling activities are in conformance with the requirements addressed.

No items of noncompliance were identified.

9. IE Information Notice Followup

For the IE Information Notices listed below, the inspector verified that the information notice was received by the licensee management, that a review for applicability was performed, and that if the information notice were applicable to the facility, appropriate actions were taken or were scheduled to be taken.

IE IN 80-17, dated May 5, 1980, Potential Hazards Associated with Interchangeable Parts on Radiographic Equipment

IE IN 80-18, dated May 5, 1980, Possible Weapons Smuggling Pouch

IE IN 80-19, dated May 6, 1980, NIOSH Recall of Recirculating-Mode (Closed-Circuit) Self-Contained Breathing Apparatus (Rebreathers)

IE IN 80-20, dated May 8, 1980, Loss of Decay Heat Removal Capability at Davis-Besse Unit 1 While in a Refueling Mode

IE IN 80-21, dated May 16, 1980, Anchorage and Support of Safety-Related Electrical Equipment

IE IN 80-22, dated May 28, 1980, Breakdown in Contamination Control Programs

IE IN 80-23, dated May 29, 1980, Loss of Suction to Emergency Feedwater Pumps

IE IN 80-24, dated May 30, 1980, Low Level Radioactive Waste Burial Criteria

IE IN 80-25, dated May 30, 1980, Transportation of Pyrophoric Uranium

IE IN 80-26, dated June 10, 1980, Evaluation of Contractor QA Programs

IE IN 80-27, dated June 11, 1980, Degradation of Reactor Coolant Pump Studs

IE IN 80-28, dated June 13, 1980, Prompt Reporting of Required Information to NRC

Supplement to IE IN 80-06, dated July 29, 1980, Notification of Significant Events at Operating Power Reactor Facilities

IE IN 80-29, dated August 7, 1980, Broken Studs on Terry Turbine Steam Inlet Flange

IE IN 80-30, dated August 19, 1980, Potential for Unacceptable Interaction Between the Control Rod Drive Scram Function and Non-essential Control Air at Certain GE BWR Facilities

IE IN 80-31, dated August 27, 1980, Maloperation of Gould-Brown Boveri Type 480 volt type K-600S and K-DON 600S Circuit Breakers

IE IN 80-32, dated August 12, 1980, Clarification of Certain Requirements for Exclusive-use Shipments of Radioactive Materials

IE IN 80-33, dated September 15, 1980, Determination of Teletherapy Timer Accuracy

IE IN 80-34, dated September 26, 1980, Boron Dilution of Reactor Coolant During Steam Generator Decontamination

IE IN 80-35, dated October 10, 1980, Leaking and Dislodged Iodine-124 Implant Seeds

IE IN 80-36, dated October 10, 1980, Failure of Steam Generator Support Bolting

No items of noncompliance were identified.

10. Plant Scram

Following the plant scram on November 2, 1980, of Unit 2, the inspector ascertained the status of the reactor and safety systems by observation of control room logs and discussions with Licensee personnel concerning plant parameters, emergency system status and reactor coolant chemistry. The inspector verified the establishment of proper communications and reviewed the corrective actions taken by the Licensee.

All systems responded as expected, and the plant was returned to operation on November 3, 1980. The scram was the result of the failure of the Recirculation Motor Generator Speed Controller increasing Reactor Core Flow thus increasing power to the APRM Hi-Hi setpoint.

No items of noncompliance were identified.

11. Refueling Activities

The inspector verified that prior to the handling of fuel in the core, all surveillance testing required by the technical specifications and licensee's procedures had been completed; verified that during the outage the periodic testing of refueling related equipment was performed as required by technical specifications; observed three shifts of the fuel handling operations (insertion) and verified the activities were performed in accordance with the technical specifications and approved procedures; verified that containment integrity was maintained as required by technical specifications; verified that good housekeeping was maintained on the refueling area; and, verified that staffing during refueling was in accordance with technical specifications and approved procedures.

No items of noncompliance were identified.

12. Followup on Headquarters Request

The inspector verified by direct observation and document review that the following Category "A" TMI Task Action Plan Requirements were completed.

No items of noncompliance were identified.

CATEGORY "A" TMI TASK ACTION PLAN REQUIREMENTS

NUREG 0578 Number	TAP Number	Title	Remarks
2.1.2:b	I.A.1.1	Shift Technical Advisor	On Duty; Training will be completed January 1, 1981
2.2.1:a	I.A.1.2 I.A.1.3	Shift Supervisor Responsibilities	Specified in Licensee Procedure QAP 300-1 R5 Operations Department Organization (non-safety items delegated to the shift foreman)
	I.A.1.3	Shift Manning Overtime Limits Specified	Specified in Licensee Procedure QAP 300-2 R4 Shift Manning: Overtime Limits Specified Implemented on November 1, 1980
	I.C.1	Short Term Accident & Procedure Review	Documented in IE Inspection Report 50-254/80-06, 50-265/80-09 and in Licensee Procedure QAP 400-9R1 Leakage Reduction
2.2.1.c	I.C.2	Shift & Relief Turnover Procedure	Specified in Licensee Procedures QAP 300-3R5 Shift Change for Shift Engineers, QAP 300-4R4 Shift Change for Nuclear Station Operators, QAP 300-5R1 Shift Change for Fuel Handling Foreman
2.2.2:a	I.C.4	Control Room Access	Specified in Licensee Procedure QAP 1900-3R8
2.1.9	II.B.1	RCS Vents - Design Submitted to NRR	No IE Action
2.1.6:b	II.B.2	Plant Shielding - Design Review	No IE Action
2.1.8:a	II.B.3	Post-Accident Sampling	Verified
2.1.2	II.D.1	Valve Testing Requirements Submit Program to NRR	Submittal Transmitted
2.1.3:a	II.D.3	Valve Position Indication Relief & Safety Valves	Verified

NUREG 0578 Number	TAP Number	Title	Remarks
2.1.7:a 2.1.7:b	II.E.1.2	Auxiliary Feed System Initiation & Flow	N/A
2.1.1	II.E.3.1	Emergency Power for Pressurizer Heaters	N/A
2.1.5	II.E.4.1	Dedicated Penetrations - Design Submittal	No IE Action (CECO Headquarters)
2.1.5:c		Recombiner Procedures Review &Upgrade	N/A
2.1.4	II.E.4.2	Isolation Dependability	Diverse Isolation Sl Verified Modifications 4/1/79-16 & 4/2/79-16 Completed
2.1.3:b	II.F.2	Instrumentation to Detect Inadequate Core Cooling	N/A
2.1.1	II.G.1	Power Supplies for Pressurizer Relief Valves & Level	N/A
2.2.2:b	III.A.1.2	Upgrade Emergency Support Facilities	Establish Interim Tech. Support Center - Verified
2.2.2:c	III.A.1.2	Onsite Operational Support Center	Establish Interim Op. Support Center - Verified
2.1.6:a	III.D.1.1	Primary Coolant Outside Containment	Leak Reduction Measure. Leakage Rate Measure Preventive Maintenance gram Established - QTP 500-14 Leak Detection & Reduction Surveillance
2.1.8:b 2.1.8:c	III.D.3.3	Inplant Radiation Monitoring	Procedures for Hi Level Release Calcs.; Monitoring capabilities Improved Radioiodine Monitoring After Accident - Verified Procedures QCP-600-10 Estimating High Activity Releases during Accident Conditions & QCP-600-11 In-plant I-131 Measurement during Post-Accident Conditions

13. Fire Protection

In accordance with the Fire Protection Evaluation "NRC Staff Positions" the inspector verified that:

- ESS MCC's are protected from water damage (item 10)
- Water damage protection is provided for MCC's 18/19-5 (item 15)
- Modifications to the MG set fire protection facilities is complete (item 25)
- Fire detection is provided for 4kv switchgear on turbine mezzanine floor (item 30)
- Manual portable foam suppressing equipment is provided (items 34, 57, 63, 64, 65)
- Oil storage room in turbine building is curbed, drained, sprinkled and enclosed (item 41)
- Hydrant HC-3 has been modified (item 51)
- NRC accepted response per meeting January 31, 1979 (item 68)
- NRC accepted the Licensee's response (item 56)
- NRC accepted response per meeting January 31, 1976 (item 61)

No items of noncompliance were identified.

14. Inspection of Licensee's Test and Experiments Program

An inspection was conducted to determine whether test and experiments were reviewed and performed in accordance with approved procedures.

The following tests and experiments documents were reviewed by the inspector:

Unit 1

Test 1-47: Core Spray Room Ambient Temperature Measurement; to acquire data to monitor ambient temperature variations in the CS pump environment during operation.

Unit 2

Test 2-27: CR 120A Relay Contact Arm Retainer Replacement - Relay Operability Test; to document the operability testing of various CR 120A relays whose contact arm retainers were replaced in accordance with NRC IE Bulletin 78-01.

Test 2-29: Unit Two Cycle Five Startup Test Program; to compile the startup tests associated with post refueling unit startup.

No items of noncompliance were identified.

15. Exit Interview

The inspector met with Licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection on November 24, 1980, and summarized the scope and findings of the inspection activities. The Licensee acknowledged the inspectors comments.