U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-254/84-27(DRP); 50-265/84-25(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, IL

Inspection Conducted: December 16, 1984, through January 19, 1985

Inspectors: A. L. Madison

A. D. Morrongiello

J. C. Bjorgen

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

1-28-85
Date

Inspection Summary

Inspection on December 16, 1984 through January 19, 1985 (Reports No. 50-254/84-27(DRSP); 50-265/84-25(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 193 inspector-hours onsite by three NRC inspectors including 39 inspector-hours onsite during offshifts.
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 for Maintenance
L. Gerner, Assistant Superintendent for Administration
D. Gibson, Quality Assurance Supervisor
G. Spedl, Technical Staff Supervisor
R. Roby, Senior Operating Engineer

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 18, 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:

61726	Monthly surveillance observations
62703	Monthly maintenance observations
71707	Operational safety verification
71710	ESF system walkdown
71714	Cold weather preparations
90713	Review of periodic and special reports
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; activites were accomplished by qualified personnmel; 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 lineups 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, except for minor reductions in power to accommodate testing and load dispatcher requests, remained at full power the duration of the report period.

Unit 2 was in operation at the beginning of the report period. Combustion products were noted in oil samples of the main transformer and on December 21, 1984, the unit was shutdown to investigate the cause. Following repairs, the unit was returned to service on December 30, 1984. On January 16, 1985, the unit experienced a reactor scram due to low condenser vacuum. It was subsequently determined that a condenser flexible boot had failed and required replacement. The unit remained in shutdown at the close of the report period.

During the scram, an emergency core cooling system initiation occurred due to high pressure in the drywell. The licensee determined that the reactor building closed cooling water (RBCCW) system had been unable to accommodate the additional heat loads (relief valves, vessel letdown to the condenser, etc.) because only one RBCCW heat exchanger was in service at the time. The licensee had placed only one heat exchanger in service due to the extreme cold river water temperature and the concern for recirculation pump seal embrittlement. In the past, when the plant used the spray canals for cooling, this was not a problem because canal temperatures remained as high as 90 degrees F. throughout the winter months.

Part of the explanation of why one heat exchanger was not sufficient is that while the inlet temperature of the heat exchanger had decreased due to the change in water sources, the heat exchange surface area had not changed. Therefore, the heat removal capability of the single heat exchanger was enhanced by the decrease in inlet temperatures but not enough to handle all the heat loads experienced during this event. Another part of the explanation is that during the event the operators were discharging reactor water to the condenser which causes additional loading on RBCCW by bypassing the regenerative heat exchanger on the reactor water cleanup system (RWCU). Also, in the past, drywell pressure was kept at 0 psig vice 1.2 psig as is now required. Because of this change, the licensee has requested a technical specification change to increase the high drywell pressure setpoint from 2.0 psig to 2.5 psig to eliminate spurious trips.

The licensee has committed to doing heat load verification checks following startup of Unit 2 to ensure sufficient heat exchanger capacity is available for a scram. Rebuilding of the regulator valves for the RBCCW heat exchangers such that two heat exchangers can be maintained in service at all times is a long term commitment and will be tracked as an open item (265/84-25-01(DRP)).

The resident inspector reviewed the performance of the operations staff during the scram. The event comprised rapidly deteriorating plant conditions and several unexpected complications, all of which were dealt with in a professional and expeditious manner. As a result of their conduct, the transient was terminated in a relatively short time and the plant was maintained in a safe configuration throughout the event.

During plant tours of Units 1 and 2, the inspectors walked down the accessible portions of the standby liquid control and control rod drive hydraulic systems.

b. Maintenance

The following maintenance activities were observed/reviewed:

(1) Unit 2 reactor core isolation cooling testable check valve leak repairs. Observed valve disassembly and inspection activities, reviewed licensee's repair evaluation, and observed valve reassembly.

(2) Installation of Unit 1 sparge air compressor after-cooler following cleaning.

c. Surveillance

The following surveillance activities were observed/reviewed:

(1) Control room portions of the rod block monitor functional test for Unit 2.

(2) Control room portions of the emergency diesel generator (EDG) operability check for EDGs 1, 2, and 1/2.

(3) Control room portions of reactor core isolation cooling valve operability checks and flow tests.

(4) QMS 200-5 - Inspection and maintenance of 4 KV horizontal circuit breakers, step F, at individual breaker locations in Unit 2.

d. Review of Routine and Special Reports

The inspectors reviewed the monthly performance report for Units 1 and 2 for the month of November 1984.

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

3. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection on January 18, 1985, and summarized the scope and findings of the inspection activities.

After discussions with the licensee, the inspectors have determined there is no proprietary data contained in this inspection report.