

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-254/84-19(DRP); 50-265/84-17(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

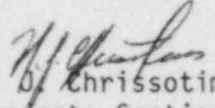
Inspection Conducted: September 24 through September 28, 1984

Inspectors: A. L. Madison

L. S. Clardy

J. L. Wiebe

J. F. Suermann

Approved By:  N. D. Chrisotimos, Chief
Projects Section 2C

10-16-84
Date

Inspection Summary

Inspection on September 24 through September 28, 1984 (Report No. 50-254/84-19(DRP); 50-265/84-17(DRP))

Areas Inspected: Special, announced inspection by senior resident inspectors and a region-based inspector of plant operations; maintenance; surveillance; and independent inspection. The inspection involved a total of 113 inspector-hours onsite by four NRC inspectors including 23 inspector-hours onsite during offshifts.

Results: Of the four areas inspected, one item of noncompliance was identified (failure to properly control a high radiation area doc - Paragraph 4.a).

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DETAILS

1. Persons Contacted

- *W. Worden, CECO Corporate Office
- *N. Kalivianakis, Superintendent
- *T. Tamlyn, Assistant Superintendent for Operations
- *D. Bax, Assistant Superintendent for Maintenance
- *G. Spedl, Technical Staff Supervisor
- *D. Gibson, Quality Assurance Supervisor
- *R. Carson, Lead Health Physicist
 - D. Soenksen, Acting Master Instrument Mechanic
 - J. Wunderlich, Fire Marshall
 - D. VanPelt, Master Electrical Mechanic
 - G. Price, Master Mechanical Mechanic

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

NRC Personnel

- *A. Madison, Senior Resident Inspector, Quad Cities
- *J. Wiebe, Senior Resident Inspector, Lacrosse
- *L. Clardy, Senior Resident Inspector, Duane Arnold
- *C. Norelius, Director, Division of Reactor Projects, RIII
- *N. Chrissotimos, Section Chief, Reactor Projects, RIII

*Denotes those present at the exit interview on September 28, 1984.

2. Operations

a. Purpose of Inspection

The inspector reviewed and observed the performance of individuals in various positions in the operating staff. Performance was reviewed to determine if the individuals knew and performed their duties and responsibilities in accordance with applicable procedures and if the operating staff was an effective organization.

b. Shift Engineers

The inspector observed the Shift Engineer performing his normal duties. The Shift Engineer appeared to be very knowledgeable concerning plant status, Technical Specifications, and administrative requirements. Although he was extremely busy, he kept positive control over the ongoing shift activities including the issuing of "R" keys (keys controlling high radiation areas), approving Radioactive Work Permits (RWP's) and approving surveillances and work requests. The Shift Engineer questioned the control room operators concerning plant status, locked-in alarms, and scheduled activities.

The Shift Engineer did not make a plant tour except for the control room during the time the inspector was observing him, from 6:30 a.m. until approximately 10:30 a.m. The inspector noted that the Shift Engineer was very busy with initiating and coordinating work at the start of the shift. The Shift Engineers indicated that they try to make at least one plant tour every shift but usually on dayshift they are too busy. The Shift Engineer relies upon the two Shift Foremen to make tours and keep the Shift Engineers informed of plant conditions. The inspector considers this acceptable but emphasizes the desirability of frequent plant tours by the Shift Engineers.

c. Control Room Operators

The inspector observed the control room operators performing their normal duties. The operators appeared to be knowledgeable concerning plant status, Technical Specifications, and Administrative requirements. During maintenance, the Unit 2 Rod Block Monitors were bypassed as required. The inspector inquired how the operators ensured that the Rod Block Monitors were not bypassed for more than 24 hours in 30 days as required by Technical Specification paragraph 3.2.C.2. Further discussions with the Instrument Technician and the Shift Engineer revealed that there was no method to ensure this Technical Specification was met. The control room operator and the Shift Engineer recognized the problem and took immediate action to log the amount of time the Rod Block Monitors were bypassed. This information was passed on to the oncoming shift and the bypass switches were caution tagged to ensure that the required information was logged. The inspector informed the Assistant Superintendent for Operations and action was initiated to formalize a method of tracking the information required to ensure that this Technical Specification is not exceeded.

During discussions with the operators and the instrument maintenance technician, the inspector determined that the estimated time that the Rod Block Monitors were bypassed for the recent maintenance and routine surveillance was significantly less than the limits of the Technical Specification. The inspector therefore does not consider this to be a noncompliance.

The inspector noted that the readability of the official control room Technical Specification is poor. The operators appear to accept this on the mistaken assumption that it is very hard to improve the readability because it would take NRC approval. The licensee agrees that the readability of the Technical Specifications could be improved. This item will remain open pending licensee action and NRC review. (254/84-19-01(DRP); 265/84-17-01(DRP)).

The inspector noted that log entries and turnover generally are in accordance with the administrative procedures. The availability of a turnover checklist would help ensure that all required items are covered. The inspector understands that a turnover checklist is being developed.

The inspector noted that several alarms occurred frequently when at power. Examples of such alarms are the High Nitrogen Flow Alarm, Rod Block Alarm, and APRM High Alarm. These alarms occurred frequently and usually the alarming parameter immediately returned to a value below the alarm setpoint. The alarm system, however, did not inform the operator when the alarming parameter returned to a value below the alarm setpoint. This resulted in a nonfunctional alarm since a return of the parameter to a value above the alarm setpoint would not alert the operator either audibly or visually.

The above problem should be considered during evaluation of the licensee's human factors control room review which was in progress. The licensee indicated that this problem will be considered in the review. As an interim measure, the licensee should evaluate each of the alarms which caused the above problem and determine if a safety problem exists when the alarm is nonfunctional as described above. The inspector noted that the Assistant Superintendent for Operations monitored and evaluated locked-in alarms during control room tours. In addition, one of the Shift Engineers was observed taking action to clear some of the locked-in alarms. The above appears acceptable until completion of the human factors control room review.

d. Equipment Operators

The inspector observed the Equipment Operators performing their normal duties. The operators appeared to be very knowledgeable concerning equipment which was being operated, and procedures were available and referred to during the startup of the No. 1/2 Emergency Diesel Generator and shutdown of the No. 1 Emergency Diesel Generator.

When entering the No. 1/2 Emergency Diesel Generator room, the inspector noted that the fire door was open. Upon being questioned, the operator determined that the door should be shut. Upon further investigation, the operator reported that the door openers have links which melt and cause the door to shut in the event of a fire. The inspector did not have any further questions concerning this item.

The turnover was complete and detailed. The status of the plant as well as major equipment was discussed. Planned maintenance and evolutions were reviewed.

e. Shift Foreman

The inspector observed the Shift Foreman performing his normal duties. The foreman appeared to be quite knowledgeable of plant status, maintenance, and equipment condition. The turnover was detailed and covered the areas listed on the turnover checklist.

The shift change meeting with the Engineering Assistants covered the areas listed on the Shift Foreman's turnover checklist and included a caution from the Shift Engineer (relayed by the Shift Foreman) to the relatively new Engineering Assistants to be sure and obtain help from

a senior individual if they were unsure about any evolutions or procedures. The Shift Foreman also cautioned the operators to take it easy and not rush. Emphasis was placed on reducing the possibility of personnel errors.

The Shift Foremen were very involved with the problems and activities on shift. Most of the time, the evolutions and problems were supervised on station. As a result, the Shift Foremen performed frequent tours of the plant. During these tours, they appeared to be verifying equipment status by reading gauges, checking for manual/automatic operation, and checking equipment condition. The inspector considers the Shift Foreman to be an effective supervisory position and is effective as the eyes and ears of the Shift Engineer out in the plant.

f. Summary

The inspector considers the operations staff to be an effective operating organization. They appeared to work well together with a minimum of confusion. The responsibilities of the positions appear to be well-defined except for the division of responsibility and authority between the two Shift Foremen. The inspector understands that the assigning of two Shift Foremen per crew is relatively recent and has been done in preparation for a change in shift organization. When the shift organization change is complete, the inspector understands that the two positions will have distinct responsibility and authority. The inspector did not observe any problems which resulted from the present interim organization.

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

3. Maintenance

a. Purpose of Inspection

Through direct observations, discussions with licensee personnel, and review of records, station maintenance activities were 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; fire prevention controls were implemented; and plant housekeeping controls were implemented.

b. Analysis

The overall quality of work performed and the attitude of station maintenance personnel is very good and directed towards safety. All maintenance work observed by the inspector was performed in a professional, workmanlike manner.

The foremen and the master mechanics continuously monitored personnel performance in-plant and demonstrated an aggressive attitude and dedication to error-free operation. The cooperative attitude of plant maintenance personnel, coupled with management's involvement, have resulted in effective implementation of the ALARA, fire prevention, and plant housekeeping programs. However, minor problems (caused by contractor personnel) were noted in the fire prevention and housekeeping areas. Licensee management was energetically pursuing appropriate actions to eliminate these problems and improve contractor performance.

Effective coordination of all work efforts was achieved by direct involvement of management and by communication between the functional work groups at morning planning meetings and throughout the workday. Some communication problems were noted between instrument maintenance and operations personnel and were being addressed by licensee management. These include removal of equipment from service without operator knowledge and discussion with operators of alarms and other indications expected during the performance of maintenance. Continued emphasis is recommended in this area.

The licensee has experienced a recent manpower shortage in instrument maintenance due to transfers, promotions, and other losses of personnel. Due to the minimum education and experience requirements, the licensee is suffering some difficulty acquiring replacement technicians. No significant impact on the maintenance program was noted as a result of this manpower shortage; however, the resident inspectors will monitor this area closely in future inspections.

Several program improvements are planned. They include:

- (i) Computer software to facilitate and improve the trending already performed by maintenance personnel.
- (ii) Conduct of maintenance procedure similar to conduct of operations procedure due by January 1985.
- (iii) Pilot training program for instrument maintenance personnel by January 1985.

The PRO program as implemented at Quad Cities appears to be an effective tool to reward superior performance as well as to investigate deviations and incidents.

c. Summary

The overall quality of work performed and the attitude of station maintenance personnel is very good and directed towards safety. However, some problems were noted with contractor groups in the housekeeping and fire prevention as noted above.

Management and supervision function as an effective and cohesive group within Quad Cities organization. They are cognizant of all concerns noted by the inspectors and are adequately addressing them.

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

4. Surveillance

a. Purpose of Inspection

The inspector reviewed and observed the overall supervision, control and implementation of the surveillance program. The program was looked at to determine if individuals involved knew and performed their duties and responsibilities, and if the program was effective in performing required surveillances and identifying problems.

The surveillance program was found adequate to perform the required functions.

b. Technical Support Group

The Technical Support Group has the responsibility for tracking the completion of each surveillance, performing a final review, and storage of records.

Each month they generate a missing surveillance list to send to each department to identify "missing" surveillances. For August 1984, there were 16 "missed" surveillances. The surveillances were either done and awaiting signatures, or not complete due to plant conditions. There is no trend or measurable record of missed surveillances at the station.

Technical Support does not issue and control surveillances as they are required to be performed. Each department is responsible for generating their own procedures on surveillance performance, and ensuring the surveillances are performed. Each department's procedures and methods are very similar; individuals can easily adapt from one department to the other without confusion.

c. Control of Surveillances in Individual Departments

Each department has a listing of surveillances required to be done on either a timed-basis or a plant-condition basis. Technical Support generates these listings or assignment schedules.

The inspector verified that out of calibration or broken test instrumentation is marked and segregated, and that equipment calibrated or tested with that test instrumentation is evaluated for possible detrimental effects to system performance.

The inspector questioned operations and maintenance personnel on safety-related key control. Safety-related keys are not given out but controlled by operators. If a locked safety-related valve or device needs to be manipulated for surveillance, an operator performs the task or accompanies the individual who will perform the task. Double verification or independent verification is also required on safety-related valves or other valves which could affect plant conditions or instrumentation.

During the performance of QIS-37-S1, the technicians followed applicable procedures on mask issuance and surveillance performance. They were in constant communication with the control room and used the procedure for instrument verification at each step. Each step of the procedure was signed as it was performed, and a functional test sticker was attached to each instrument as it was tested. The technicians also exhibited an excellent knowledge of radiological controls and practiced good housekeeping methods.

The fact that a second technician was receiving on-the-job training is commendable. Requirements on entry level instrument technicians also specify certain formal education. During the performance of QOS 1000-S4, there was good identification and reporting of problems by the shift foreman. He identified a leak on the high pressure inboard bearing seal and recommended to the control room that a work request for repair be initiated.

During the review of QOS-005-T1, the inspector noted that readability of the associated graph was difficult. Other graphs in the control room were noted to have the same problem and should be addressed along with Technical Specification readability (Paragraph 2.c.).

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

5. Independent Inspection

a. Control of Radiation Areas

On September 25, 1984, the inspector observed the R-gate into the Unit 2 northeast RHR area to be unlocked. This area is posted as a high radiation area. A laborer was sitting on the change bench adjacent to the R-gate area. When questioned by the inspector, the individual stated he was a tool runner for two workers inside the high radiation boundary. The laborer stated he was not there to stop anyone from entering the area. He also stated he had no way of knowing if a person had been granted access to the area. He did not have a key for the R-gate lock but one of the two workers in the area did.

10 CFR 20.203(c)(2) states: "Each entrance or access point to a high radiation area shall be:

- (i) Equipped with a control device which shall cause the level of radiation to be reduced below that at which an individual might receive a dose of 100 millirems in 1 hour upon entry into the area; or
- (ii) Equipped with a control device which shall energize a conspicuous visible or audible alarm signal in such a manner that the individual entering the high radiation area and the licensee or a supervisor of the activity are made aware of the entry; or
- (iii) Maintained locked except during periods when access to the area is required, with positive control over each individual entry."

Contrary to 10 CFR 20.203(c)(2), the licensee did not provide positive control over each individual entry when the area was not locked. The licensee does not employ methods (i) or (ii).

This is an item of noncompliance. (265/84-17-02(DRP))

The licensee's corrective actions include training of R-gate watches, indoctrination in initial and requalification general employee training on R-gate watch duties and responsibilities for access control, and increased controls over R-gate keys are adequate. As such, no reply to this noncompliance is required.

Commonwealth Edison is also considering placing self-closing doors on this and similar doors in all their plants.

b. Combustible Materials

During plant tours, the inspector noticed a large amount of wooden scaffolding and a wooden ladder in the plant. The licensee buys the wood fire-treated and marks it with a purchase order number so if it is cut, it can be remarked and traced to a fire-treated standard. The wooden ladders are not fire-treated. The licensee is attempting to implement a transient combustible fire hazard analysis for such items to ensure the fire hazards are within installed fire-fighting capacities, and to track the amount and location of combustibles in the plant.

c. Housekeeping

During plant tours, the inspectors noticed that trash had accumulated in several cable trays throughout the plant. The amount of trash (primarily paper) is not excessive and the licensee's housekeeping program does address this concern. However, the resident inspectors will monitor this area to ensure continued attention is given to cable tray cleanup.

6. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection on September 28, 1984, and summarized the scope and findings of the inspection activities. The licensee acknowledged the inspectors' concerns.