Commonwealth Edison
Quad Cities Nuclear Power Station
22710 206 Avenue North
Cordova, Illinois 61242
Telephone 309/654-2241

ESK-95-011

January 13, 1995

Director, Office of Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Quad Cities Power Station Units 1 and 2;
NRC Docket Number 50-254 and 50-265;
NRC Inspection Report Numbers 50-254(265)/94017

Reference: John B. Martin letter to M. Wallace dated December 14, 1994, transmitting Two Notice of Violations and Proposed Imposition of Civil Penalties Totaling $100,000 (Severity Level III)

Enclosed is Commonwealth Edison's (ComEd) response to the Two Notices of Violation transmitted with the referenced letter. The NOV cited two violations, involving:

1) Failure to follow maintenance, inspection, and testing procedures associated with the control rod drive system and 2) failure to promptly correct a condition adverse to quality as indicated by the degradation of the control rod SSPV diaphragms.

These violations have been classified in the aggregate as Severity Level III problems, and assessed a civil penalty of $50,000 each. ComEd's response and payment of the civil penalty is attached.

This letter of response contains the following commitments:

1) Maintenance training on HCU's is being evaluated and will include hands-on instruction using the procedure. Due Date 12/31/95 (tracked under NTS 254-180-94-01103).

2) Training will be provided on Temporary Alterations to Mechanical Maintenance personnel. Due Date 12/31/95 (tracked under NTS 254-180-94-01104).

3) HCU Post-maintenance testing will be re-evaluated by System Engineering and Operations personnel and any necessary changes will be made. Due Date 03/31/95 (tracked under NTS 254-180-94-01102).

9501240398 950113
PDR ADOCK 05000254
Q PDR

IE14

4) The corrective actions for recent reactivity management deficiencies include a requirement for development and distribution of specific expectations for nuclear engineers for the disposition of equipment issues that affect reactivity (NTS item 2541809401701). Progress in this area has been continuous during the past two months with the overall site emphasis on proper reactivity management and procedure revisions that have been identified and implemented. Due Date 02/28/95 (tracked under 254-180-94-01701)

5) System Engineering has developed and begun implementation of a consolidated work tracking database to identify, prioritize, and record all department work activities. This will enable proper prioritization and focus of resources, as well as oversight of the engineering work output. Due Date 02/28/95 (tracked under NTS 254-100-94-01701.01)

6) The station will evaluate testing and practices performed at other utilities to demonstrate scram function as part of post-maintenance testing prior to startup. Due Date prior to Unit 2 Startup after Q2R13 (anticipated date - 05/31/95) (tracked under NTS 254-100-94-01701.02).

7) A Senior Engineer (with an SRO background) has been assigned to perform an independent effectiveness review on safety significant industry information (SILs). Due Date 02/28/95 (tracked under NTS 254-315-94-07901FA).

We appreciate the NRC's acknowledgement of Quad Cities corrective actions for these violations, for example, counselling involved personnel, conducting a Safety Culture day, re-evaluating maintenance training and procedures for the hydraulic control units, developing integrated planning and schedules, developing an aggressive replacement plan for the degraded diaphragms, and creating a data base of generic notices available to all station personnel. You also recognized that our decision to shut down Unit 2 on October 2, 1994, and maintain Unit 1 shutdown were intended, in part, to stress to our staff the significance of our corrective actions.

If there are any questions or comments concerning this letter, please refer them to Nick Chrissotimos, Regulatory Assurance at (309) 654-2241, ext 3100.

Respectfully,

E. S. Kraft, Jr.
Site Vice President
Quad Cities Station

Attachment

cc: J. Martin, Regional Administrator, RIII
R. Pulsifer, Project Manager, NRR
C. Miller, Senior Resident Inspector, Quad Cities

VIOLATION 50-254/265-94017:

During an NRC inspection conducted from July 29 through September 30, 1994, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C, the Nuclear Regulatory Commission proposes to impose civil penalties pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalties are set forth below:

I.

A. Technical Specification 6.2.A.1 requires that written procedures recommended in Appendix A of Regulatory Guide (RG) 1.33, Revision 2. February 1978, be established and implemented. Appendix A of RG 1.33, Revision 2, requires, in part. that maintenance that can affect safety-related equipment, and surveillance tests and inspections relative to control rod operability and scram time tests, be performed in accordance with written procedures.

1) Procedure QCMM 300-34, "CRD HCU Scram Inlet and Outlet Valves Overhaul and Inspection," Revision 1, dated February 17, 1994, Step 1.13.a, requires installation of regulated air to the top of the inlet and outlet valve diaphragm cases.

Contrary to the above, NRC inspectors identified that on April 17. 1994, mechanics using Procedure QCMM 300-34 to work on Unit 1 hydraulic control unit (HCU) 42-43, did not install regulated air to the top of the inlet and outlet valve diaphragm cases.

2) Procedure QCMM 1530-11, Post Maintenance Verification Guide for Passive Visual Inspection," Revision 2, dated November 12, 1993, Steps 1.2.e and 1.2.h, requires the maintenance foreman to verify that all air piping was properly oriented, and the area was clean of all debris from the work activity following maintenance. Procedure QCMM 300-341 "CRD HCU Scram Inlet and Outlet Valves Overhaul and Inspection", Revision 1, dated February 17, 1994, Step 15, requires the maintenance mechanic's and supervisor's verification by signature that work was completed on the valves, the area was cleaned, and all discarded material was removed.

Contrary to the above, NRC inspectors identified that on April 17, 1994, the maintenance supervisor and mechanic, following completion of work on Unit 1 HCU 42-43 (control rod L-11) scram solenoid pilot valves (SSPVs) in accordance with Nuclear Work Request Q11247. did not verify that all air piping was properly oriented because they failed to identify that a plug was left installed in the exhaust port (air piping) of a valve affected by the work activity.

REASONS FOR THE VIOLATION:

ComEd acknowledges the violation. The reason for the violation was due to deviation from the procedure in example 1 and failure to perform an adequate passive-visual test. Contributing to the above reasons were several common factors:

1) Procedure as written was difficult to follow.

2) There was a lack of formal training in using the procedure and in procedure adherence understanding.

3) Opportunities were missed to catch the errors in pack preparation and during the passive-visual inspection.

4) Work practices established and improved upon during the years, were not reflected in the procedure.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED:

The station took the following immediate actions to correct th problem:

1) The problem with the rod was corrected.

2) All other HCUs for Unit 1&2 were inspected with no problems identified.

3) Implications for other areas were evaluated and found acceptable.

4) The mechanics involved in the event were removed from their normal duties, counseled, and were assigned to the investigation.

5) Site Vice President and Maintenance supervisors held meetings (including a half day stand-down)with department personnel to relay expectations on procedure adherence, recognition of system alteration, and self check.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATION:

The station has taken or will take the following actions to prevent recurrence:

1) The maintenance procedure was reviewed for enhancement and revision by a team of mechanics. **COMPLETED (NTS 254-180-94-01101)**

2) Maintenance training on HCUs is being evaluated and will include hands-on instruction using the procedure. **DUE DATE 12/31/95 (NTS 254-180-94-01103)**

3) Training will be provided on Temporary Alterations to mechanical maintenance personnel. **DUE DATE 12/31/95 (NTS 254-180-94-01104)**

4) HCU Post maintenance testing will be re-evaluated by System Engineering and Operations personnel and any necessary changes will be made. **DUE DATE 03/31/95 (NTS 254-180-94-01102)**

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:

Full compliance will be met with the completion of the above corrective actions.

B. 10 CFR Part 50, Appendix 8, Criterion XI, Test Control,* requires that a test program be established to assure that all testing required to demonstrate that structures. systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents.

1) Interim Procedure 881, 'Control Rod Scram Timing Prior to Maintenance," effective September 30, 1994, directed pre-maintenance control rod time testing for Unit I control rod F-10 (HCU 22-39) in conjunction with Nuclear Work Request 018180 prior tn replacement of the SSPVS.

Contrary to the above, the licensee identified that on September 30, 1994, engineers directing testing specified by Interim Procedure 881 caused testing of Unit 2 control rod F-10 instead of Unit I control rod F-10.

2) Procedure QTS 130-4, "CRD Scram Timing in the Hot Condition," Revision 22, dated October 13, 1992, Step F.2.h, requires when performing this test that the rod worth minimizer be placed in scram timing mode or bypass.

Contrary to the above, as a result of a self-disclosing event, the licensee identified that on September 28, 1994, the Unit I rod worth minimizer was not placed in scram timing mode or bypass before performing a scram timing test for control rod M-10 in the hot condition.

3) Nuclear Work Request Q11247 was utilized to replace the diaphragms on the Unit I hydraulic control unit 42-43 SSPVs for control rod L-11.

Contrary to the above, NRC inspectors identified that Nuclear Work Request Q11247 did not provide adequate instructions for post-maintenance testing to verify that control rod L-11 remained capable of performing satisfactorily in service following April 17, 1994 maintenance performed on Unit 1 hydraulic control unit 42-43 SSPVs for control rod L-11. As a result, on August 29, 1994, control rod L-11 failed to scram during scram time testing.

The above (items A and B) were classified as a Severity Level III problem (Supplement 1)and assessed a Civil Penalty of $50,000.

REASONS FOR THE VIOLATION:

ComEd acknowledges the violation. The reason for the violations were as follows:

In **example 1**, the reason for the violation was a human error that allowed the incorrect unit list to be chosen to verify that an alternate rod could be tested.

In **example 2**, the reason for the violation was a failure to follow test procedure.

In **example 3**, the reason for the violation was an incorrect assumption that past practices were adequate to demonstrate the scram function.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED:

The station took the following corrective actions in response to the above events:

In examples 1 and 2, the following actions were taken:

1) The QNE and Test Director were removed from duties and counseled.

2) The QNE and Test Director discussed the event at a department meeting.

In example 3, the following actions were taken:

1) The station performed cold scram functional testing.

CORRECTIVE STEPS TAKEN TO AVOID FURTHER VIOLATION:

The station will take or has taken the following corrective actions:

In example 1 and 2, the following actions will be taken:

1) The corrective actions for recent reactivity management deficiencies include a requirement for development and distribution of specific expectations for nuclear engineers for the disposition of equipment issues that affect reactivity (NTS item 2541809401701). Progress in this area has been continuous during the past two months with the overall site emphasis on proper reactivity management and procedure revisions that have been identified and implemented. **Current Due Date 02/28/95 (tracked under 254-180-94-01701)**

2) The System Engineering Department is fully involved in the implementation of the overall site planning and scheduling improvements that are being implemented. In addition, System Engineering has developed and begun implementation of a consolidated work tracking database to identify, prioritize, and record all department work activities. This will enable proper prioritization and focus of resources, as well as oversight of the engineering work output. **Current Due Date 02/28/95 (tracked under NTS 254-100-94-01701.01)**

3) An experienced reactor engineer was hired to better control schedule and planning within the Nuclear Engineering Group. **COMPLETED**

In example 3, the following actions will be taken:

1) The station will evaluate testing and practices performed at other utilities to demonstrate scram function as part of post maintenance testing prior to startup. **CURRENT DUE DATE, PRIOR TO UNIT 2 STARTUP AFTER Q2R13 (ANTICIPATED DATE - MAY 31, 1995).**

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:

Full compliance will be met with the completion of the above actions.

II. 10 CFR Part 50 Appendix B, Criterion XVI. "Corrective Action," requires, in part, that measures be established to assure that conditions adverse to quality are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to the appropriate levels of management.

Contrary to the above, at various times between May 1993 and September 28, 1994, the licensee failed to promptly correct a significant condition adverse to quality, namely, the degradation of safety-related control rod SSPV diaphragms. These failures are evidenced by the following examples:

1) During May and July 1993, four control rods exhibited delayed start of motion (DSOM) during testing, an indicator of degraded SSPV diaphragms, yet this condition adverse to quality was not corrected until September 28, 1994.

2) General Electric Service Information Letter (SIL) 575, issued on October 27, 1993, discussed problems with control rod drive DSOM due to SSPV diaphragm failures. SIL 575 recommended that the BUNA-N components (diaphragms) used in SSPVs should be limited to three to four years of plant service. On November 24, 1993, the licensee failed to take prompt corrective action on this condition adverse to quality by incorrectly dispositioning the SIL 575 recommendation and concluding that the Quad Cities service life of six years was acceptable based on operating history.

3) During December 1993 and January 1994, eleven control rod exhibited DSOM, and one control rod failed to scram due to a degraded diaphragm. The licensee failed to take action to correct this condition adverse to quality until September 28, 1994.

4) General Electric Rapid Information Communication Service Information Letter (RICSIL) 069, Revision 1 issued on May 11, 1994, recommended that owners identify SSPVs which were refurbished or replaced two or more years ago using diaphragm kits of new valves with assembly dates of 1989 or after; perform sampling of the 118 SSPV valves and examine the diaphragms for signs of cracking or excessive hardening, and if evaluation indicates near end of life conditions, initiate action to replace diaphragms In "118 valves and perform the same evaluation on 117 valves. On July 29, 1994, the licensee failed to take prompt corrective action on this condition adverse to quality by incorrectly dispositioning the RICSIL 069 recommendation and concluding that Quad Cities monitoring of the status of SSPVs through scram timing sequences was an adequate manner to ensure quality.

5) On August 29, 1994, Unit 2 control rod D-11 inadvertently scrammed during a surveillance (LER No. 265/94-010), and Unit I control rod R-7 failed to insert during testing, due to degraded SSPV diaphragms. On August 30. 1994. seven control rods exhibited DSOM. Despite these indication of conditions adverse to quality, the licensee failed to take corrective action until September 28, 1994.

6) On September 2, 1994, eight control rods exhibited DSOM. Despite these indication of conditions adverse to quality. the licensee failed to take corrective action until September 28, 1994.

This is a Severity Le· :II problem (Supplement I). Civil Penalty - $50,000.

REASONS FOR THE VIOLATION:

ComEd acknowledges the above violation. The causes for these events were:

1) Lack of formal documentation of the SIL reviews existed.

2) The station had an informal problem resolution process.

3) Responses to industry information was inadequate.

4) The station failed to identify broader implications.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED:

The station has taken the following immediate action in response to the violation:

1) A replacement plan for the SSPVs was developed and the SSPV's were replaced.

CORRECTIVE STEPS TAKEN TO A[illegible]D FURTHER VIOLATION:

The station has taken or will take the follov[illegible]tions:

1) Regulatory Assurance has created a data[illegible]ase of generic notices, Information Notices, Bulletins, SILS, RICSILs, SOERs, and SERs which are available to all station personnel. **COMPLETED**

2) A Senior Engineer (with an SRO background) has been assigned to perform an independent effectiveness review on safety significant industry information (SILs). **DUE DATE - 28 February 1995** (this will be tracked under 254-315-94-07901FA).

3) Regulatory Assurance department will coordinate multi-discipline reviews through the use of the Process Expert Group and the Event Screening Committee which will be composed of members from various station departments not only to review events that have occurred, but also to perform multi-discipline investigations into station events. **COMPLETED**

4) Station management will continue to reinforce station-wide message, including all problems are to be documented for both tracking and resolution, including consideration of broader implications. An indication that this management message is being internalized by station personnel is the number of PIFs submitted (to identify problems)has increased at the station. In addition to the above action, Senior Station Management is currently assigned to overview the Event Screening Committee meeting each morning to ensure that all station PIFs are being correctly handled and the proper level of significance is assigned. **COMPLETED**

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:

Full compliance will be met with the completion of the above actions.