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Quad Cities Generating Station
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ESK-97-010

January 10, 1997

U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Quad Cities Station Units 1 and 2;
NRC Docket Numbers 50-254 and 50-265;
NRC Inspection Report Numbers 50-254/96-012 and 50-265/96-012

Reference: J. Caldwell to E. S. Kraft, Jr. Letter dated November 26, 1996 Concerning Two Notices of Violation.

Enclosed is Commonwealth Edison's (ComEd's) response to the two Notices of Violation transmitted with the referenced letter. The first violation concerned inadequate actions concerning the RCIC system, the second violation concerned three examples of the lack of quantitative or qualitative acceptance criteria being used.

This letter contains the following commitments:

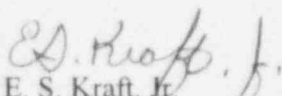
1. Training Requests 96-1776 and 96-1777 have been submitted to include why annunciator 901(2)-4 H-15 would be expected when the RCIC pump is uncoupled from the turbine.
2. QCOS 1300-04, RCIC SYSTEM TURBINE OVERSPEED TEST, will be revised to add a step explaining the interlock between the AO 1(2)-1301-12 and 13 valves and the MO 1(2)-1301-61 valve. This step should also explain the flowpath of the condensate pump when the RCIC pump is uncoupled from the turbine. This will be completed by March 1, 1997.
3. A sample of the procedures revised by the procedure writer involved in this event will be reviewed for discrepancies against electrical interlocks by April 15, 1997. If other occurrences of procedure deficiencies are noted, the sample size will be expanded.
4. Quad Cities Station revised QCEMS 250-16 (AVCO MSIV Manifold Assembly Environmental Qualification Surveillance) on December 20, 1996 to inspect the plunger overall length to be 1.290 inches, +.005 inches - .003 inches. The revision also added a note requiring the solenoids to be left energized for at least 2 hours prior to the performance of the verification of adequate functioning. (See NTS item # 2542009617601.)
5. CRIT has revised the special receipt inspection requirements for the solenoid rebuild kit (SI 65.G32) to include measuring of the plunger length using the acceptance criteria provided by the vendor (AVCO).

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6. The RHRSW pump event shall be briefed to all Mechanical Maintenance personnel. Briefings shall be completed by February 1, 1997. This item shall be tracked under NTS # 2541009601206AB.01.
7. The standardized work instructions for rebuilding the RHRSW 8SF pumps have been changed to add a check of the clearances between the shaft sleeve nuts and the INPRO seals during the check of the axial movement of the rotating element. Acceptance criteria and tolerances have been specified for this check.
8. Verify or revise QCAP 2209-09, "Post Maintenance Testing Guide," such that it contains the level of detail required to ensure that technical data is not omitted in the procedure creation, revision, review, and deletion process. Provide training to all personnel required to write or review PMTs to familiarize them with this procedural requirement. Actions to be completed by May 30, 1997. (NTS# 2541809602402; Work Control Department.)
9. Verify or revise NEP 04-01, "Plant Modifications," such that it contains the level of detail required to ensure that technical data is not omitted in the procedure creation, revision, review, and deletion process. Provide training to all personnel required to write or review modifications tests to familiarize them with this procedural requirement. Actions to be completed by May 30, 1997. (NTS # 2541809602403; Design Engineering Department.)
10. Verify or revise QCAP 1100-04, "Procedure Revision, Review and Approval," such that it contains the level of detail required to ensure that technical data is not omitted in the procedure creation, revision, review, or deletion process. Actions to be completed by May 30, 1997. (NTS# 2541809602404; Administration Department.)

If there are any questions concerning this response, please contact Mr. Charles Peterson, Regulatory Affairs Manager, at (309) 654-2241 extension 3602.

Respectfully,


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

Attachment (A), Quad Cities' Response to An Apparent Violation

cc: A. B. Beach, Regional Administrator - RIII
C. G. Miller, Senior Resident Inspector - Quad Cities
R. M. Pulsifer, Project Manager - NRR
R. J. Singer, MidAmerican Energy Company
D. C. Tubbs, MidAmerican Energy Company
DCD License (both electronic and hard copy)

Attachment (A)
Quad Cities' Response to An Apparent Violation
ESK-97-0i0

STATEMENT OF VIOLATION (96-012-01)

Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires in part, that activities affecting quality shall be prescribed by instructions, procedures, or drawings of a type appropriate to the circumstances.

Contrary to the above, Quad Cities annunciator procedure QCAN 901(2)-4 H-15, for responding to RCIC turbine gland seal vacuum tank high level - an activity affecting quality - was not appropriate to the circumstances in that it required action (verification that RCIC barometric condenser drain valves were open) which was impossible in any circumstance when the RCIC turbine steam inlet valve was open, due to a design interlock between the inlet and drain valves.

REASON FOR VIOLATION:

Quad Cities Station acknowledges the violation for having a deficient annunciator procedure (QCAN) for the RCIC barometric condenser vacuum tank high level alarm. The QCAN did not specify that the AO 1-1301-12 and 13 valves would only open if MO 1-1301-61 valve was closed. The Operators on shift suspected that this interlock was keeping the 12 and 13 valves closed, but they followed the QCAN procedure and researched the problem after the turbine was shutdown.

The cause of this event was a cognitive personnel error. There was inadequate research of interlocks associated with the valves listed in the procedure when it was revised in 1990. This procedure revision was prepared by a contractor and reviewed by a licensed Nuclear Station Operator. These individuals are no longer employed at Quad Cities Station.

The first 12 revisions of this annunciator procedure did not mention the AO 1-1301-12 and 13 valves. On December 3, 1990, this annunciator procedure was converted from a QOA to the QCAN format as a part of the Station procedure re-write program. The QCAN included verification of the AO 1-1301-12 and 13 valves opening but did not reference the interlock with the MO 1-1301-61 valve. The QCAN has been revised one other time, on July 5, 1995, but the change was unrelated to these valves.

CORRECTIVE ACTIONS TAKEN:

QCAN 901(2)-4 H-15, RCIC barometric condenser vacuum tank high level, was revised effective August 28, 1996, to include the position of the MO-1(2)-1301-61 valve and allow the surveillance to continue if the vacuum tank level is maintained within the range of the sightglass.

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ACTIONS TO PREVENT FURTHER OCCURRENCE:

Training Requests 96-1776 and 96-1777 have been submitted to include why annunciator 901(2)-4 H-15 would be expected when the RCIC pump is uncoupled from the turbine.

QCOS 1300-04, RCIC SYSTEM TURBINE OVERSPEED TEST, will be revised to add a step explaining the interlock between the AO 1(2)-1301-12 and 13 valves and the MO 1(2)-1301-61 valve. This step should also explain the flowpath of the condensate pump when the RCIC pump is uncoupled from the turbine. This will be completed by March 1, 1997.

A sample of the procedures revised by the procedure writer involved in this event will be reviewed for discrepancies against electrical interlocks by April 15, 1997. If other occurrences of procedure deficiencies are noted, the sample size will be expanded.

DATE WHEN FULL COMPLIANCE WILL BE MET:

Full compliance was met on August 28, 1996, the effective date of QCAN 901(2)-4 H-15, revision 2.

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STATEMENT OF VIOLATION (254/265-96-01206):

During an NRC inspection conducted on August 23 through September 23, 1996, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG 1600, the violation is listed below:

2. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires in part, that instructions, procedures or drawings shall include appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished.

Contrary to the above:

- a. In mid-March 1996 maintenance personnel completed work requests to rebuild the inboard main steam isolation valve (MSIV) manifold assemblies. The work packages did not provide quantitative or qualitative acceptance criteria for the length of the AC solenoid plunger assembly. Failure to verify that this length was correct resulted in the 1D MSIV becoming inoperable on September 3, 1996, due to an improper seating surface of the solenoid plunger.
- b. On August 19, 1996, maintenance personnel completed work request 940104117-02 on the 1D Residual Heat Removal service water pump. The work request did not provide quantitative or qualitative acceptance criteria for the gap between the outboard radial bearing isolator (INPRO seal) and the rotating shaft sleeve nut. Failure to properly establish this gap resulted in the pump becoming inoperable on September 7, 1996, due to excessive heat (sparks) being emitted from the bearing.
- c. Unit 1 modification E04-1-93-244, to install new flow elements in the off-gas system, was not verified by post-maintenance testing which included a test of the wiring from the flow element to the transmitter; as a result, the testing failed to disclose a wiring error.

This is a Severity Level IV violation (supplement I).

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REASON FOR VIOLATION:

Quad Cities Station acknowledges the violation for failure to include appropriate quantitative or qualitative acceptance criteria within instructions, procedures, and drawings for determining that important activities have been satisfactorily accomplished as required by Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings". The three separate events included within this violation are discussed individually below.

Quad Cities Station has determined that the root cause of the main steam isolation valve (MSIV) plunger event was a defective part supplied by the vendor. The vendor did not consider the length of the AC solenoid plunger assembly a critical characteristic for plunger inspection prior to this event. As per the manufacturer of the solenoid valve (AVCO), "There has been no previous reported or known condition of this kind since origination in early 1970's." There were no known occurrences recorded in Mechanical Maintenance work history cards nor in Total Job Management (TJM) records in the past 10 years.

Quad Cities Station has determined that there are two root causes for the failure to establish an adequate gap between the outboard radial bearing isolator (INPRO seal) and the rotating shaft sleeve nut on the 1D residual heat removal service water (RHRSW) pump. They are failure of the workers to note the lack of adequate clearance between the INPRO seal and the shaft sleeve nut, and the lack of detailed work instructions to check the gap between the INPRO seal and the shaft sleeve nut.

Quad Cities Station has determined that the root cause for the failure of testing to disclose a wiring error during installation of the new flow element for the Unit 1 Off Gas System was the failure of Design Engineering to provide adequately detailed post-modification testing criteria.

ACTIONS TAKEN:

In reference to 2. a. above:

- The failed manifold was removed from 1D MSIV. The spare manifold block was overhauled under work package 950087580-01. A spare manifold block was installed on 1D MSIV under work package 960081653. MSIV closure timing (QCOS 0250-04) and fail-safe testing (IP 96-0156, PFC 2664) were satisfactorily performed on 1D MSIV on September 5, 1996.
- Root cause investigation (PIR 1-96-176, PIF 96-2661) was completed and approved by the Station Manager on September 27, 1996.
- Dresden Station (known user of these items), CRIT-QC Supervisor (Central Receiving, Inspection, Testing), Materials Engineering Group Lead, and the Site Part 21 Coordinator were notified of the potential Part 21 issue.

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- Quad Cities Station issued a Nuclear Operations Notification (NON QC 04-96-019 [SB] Improper Solenoid Manufacturing) to alert other ComEd plants to the event at Quad Cities.
- ComEd Stores placed Stores Item (SI) # 765.G32 (solenoid kit) on hold at all ComEd stations until stock was inspected for this problem. CRIT and Quad Cities Station re-inspected all stock on hand at their locations and revised their inspection criteria for all future receipt inspections. No other plungers were found at Quad Cities nor at CRIT with the same deficiency.
- System Engineering and Automatic Valve Co. have provided exact dimensions regarding the required seat dimensions to CRIT and Quad Cities Station.

In reference to 2. b. above:

- 1D RHRSW pump was repaired under NWR 96-0083349-01.
- The Component Engineer notified the ComEd Pump Peer Group members of the event.
- Root Cause investigation (PIR 1-96-180, PIF 96-2702) was completed and approved by the Station Manager on October 14, 1996.

In reference to 2. c. above:

- The wiring between the flow probe and the signal conditioner was corrected as per Field Change Request 960326 and Work Package 93006203701. Post-maintenance testing was accepted on October 1, 1996.

ACTIONS TO PREVENT FURTHER OCCURRENCE:

In reference to 2. a. above:

- Quad Cities Station revised QCEMS 250-16 (AVCO MSIV Manifold Assembly Environmental Qualification Surveillance) on December 20, 1996 to inspect the plunger overall length to be 1.290 inches, +.005 inches - .003 inches. The revision also added a note requiring the solenoids to be left energized for at least 2 hours prior to the performance of the verification of adequate functioning. (See NTS item # 2542009617601.)
- CRIT has revised the special receipt inspection requirements for the solenoid rebuild kit (SI 65.G32) to include measuring of the plunger length using the acceptance criteria provided by the vendor (AVCO).

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In reference to 2. b. above:

- The RHRSW pump event shall be briefed to all Mechanical Maintenance personnel. Briefings shall be completed by February 1, 1997. This item shall be tracked under NTS # 2541009601206AB.01.
- The standardized work instructions for rebuilding the RHRSW 8SF pumps have been changed to add a check of the clearances between the shaft sleeve nuts and the INPRO seals during the check of the axial movement of the rotating element. Acceptance criteria and tolerances have been specified for this check.

In reference to 2. c. above:

- Verify or revise QCAP 2209-09, "Post Maintenance Testing Guide," such that it contains the level of detail required to ensure that technical data is not omitted in the procedure creation, revision, review, and deletion process. Provide training to all personnel required to write or review PMTs to familiarize them with this procedural requirement. Actions to be completed by May 30, 1997. (NTS# 2541809602402; Work Control Department).
- Verify or revise NEP 04-01, "Plant Modifications," such that it contains the level of detail required to ensure that technical data is not omitted in the procedure creation, revision, review, and deletion process. Provide training to all personnel required to write or review modifications tests to familiarize them with this procedural requirement. Actions to be completed by May 30, 1997. (NTS # 2541809602403; Design Engineering Department).
- Verify or revise QCAP 1100-04, "Procedure Revision, Review and Approval," such that it contains the level of detail required to ensure that technical data is not omitted in the procedure creation, revision, review, or deletion process. Actions to be completed by May 30, 1997. (NTS# 2541809602404; Administration Department).

DATE WHEN FULL COMPLIANCE WILL BE MET:

- All actions shall be completed by May 30, 1997.