



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

FEB 14 1991

DOD/DCB
(R105)

Docket No. 50-254
License No. DPR-29
EA 91-018

Commonwealth Edison Company
ATTN: Mr. Cordell Reed
Senior Vice President
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Gentlemen:

SUBJECT: NRC INSPECTION REPORT NO. 50-254/91006

This refers to the inspection conducted by Messrs. S. G. Du Pont, R. M. Lerch, R. Bocanegra and J. Shine of this office, G. West, of the Office of Nuclear Reactor Regulations (NRR) and J. DeBor, of Science Applications International, Inc., from January 26 through February 5, 1991. The inspection included a review of activities authorized for your Quad Cities Power Station facility. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

Based on the results of this inspection, two apparent violations were identified and are being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), 10 CFR Part 2, Appendix C (1990). Accordingly, no Notice of Violation is presently being issued for these inspection findings. In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review.

An enforcement conference to discuss the two apparent violations has been scheduled for February 21, 1991. The purposes of this conference are to discuss the apparent violations, their causes and safety significance; to provide you the opportunity to point out any errors in our inspection report; to provide an opportunity for you to present your proposed corrective actions; and to discuss any other information that will help us determine the appropriate enforcement action in accordance with the Enforcement Policy. You will be advised by separate correspondence of the results of our deliberations on this matter. No response regarding these apparent violations is required at this time.

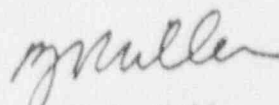
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In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

Sincerely,



Hubert J. Miller, Director
Division of Reactor Projects

Enclosures:

1. Executive Summary
2. Inspection Report
No. 50-254/91006(DRP)

cc w/enclosures:

- T. Kovach, Nuclear Licensing
Manager
- R. L. Bax, Station Manager
DCD/DBB (RIDS)
Licensing Fee Management Branch
- Resident Inspector, RIII, Quad Cities
- Resident Inspector, RIII, Dresden
- Resident Inspector, RIII, LaSalle
- Richard Hubbard
- J. W. McCaffrey, Chief, Public
Utilities Division
- J. Lieberman, OE
- J. Partlow, NRR
- J. Goldman, OGC

EXECUTIVE SUMMARY
QUAD CITIES UNIT 1 - JANUARY 24, 1991 LOSS OF REACTOR VESSEL INVENTORY EVENT
SPECIAL INSPECTION TEAM REPORT

1. Event Description

On January 24, 1991, while Quad Cities Unit 1 was in cold shutdown (zero psig and 145° F) two consecutive loss of reactor vessel inventory occurred during maintenance testing of the shutdown cooling pump suction valves on the idle loop of the residual heat removal (RHR) system. Both events had similar root causes and the same flow path, from the reactor vessel through open vent and drain valves on the idle loop. The first event occurred when electrical maintenance personnel stroked open one of the shutdown cooling valves with the shutdown cooling isolation valve open. This resulted in a loss of 5 inches of water level from the reactor vessel before electrical maintenance personnel had closed the pump suction valve and the control room operator had subsequently closed the isolation valve. The shutdown cooling header, between the isolation valve and the pump suction valves, was subsequently drained through the open vent and drain valves to the reactor building floor drains whenever the pump suction valves were tested (at least 6 occurrences). The second event occurred when the control room operator opened the isolation valve in response to the operator's inadequate evaluation of the notification of water on the reactor building basement floor, and a previously noticed high RHR discharge pressure. The operator believed that a RHR system relief valve had lifted. The opening of the isolation valve resulted in draining the vessel into the partially drained shutdown cooling header and through the open vent and drain valves into the reactor building floor drains. The second event resulted in an additional loss of 9 inches of vessel water level. Throughout the event, the shutdown cooling header continued to be drained through the open vent and drain valves whenever the pump suction valves were being tested. In addition, throughout the event, reactor vessel level was not monitored and the opportunity to detect the loss of inventory was missed. A total of 4200 gallons were drained to the reactor building floor drains, 2800 gallons directly drained from the reactor vessel and 1400 gallons from the shutdown cooling header.

2. Safety Significance

The safety consequence of the event was minimal due to the shutdown cooling isolation valve's automatic closure feature (+8 inches reactor vessel water level) which is designed to provide more than adequate protection from uncovering the reactor core. In addition, the potential for release to the environment was low in that the secondary containment adequately prevented any release and the total amount was within the design of the waste treatment system.

However, the root causes of this event are considered significant in that they represented the failure of various administrative, operations and maintenance barriers associated with safe operation.

3. Root Causes

The root causes of the event were the combination of inadequate management involvement and personnel errors.

The lack of management involvement was evident by the inadequate communications, both intra and inter of the control room, the general lack of a questioning attitude on the part of operations and maintenance personnel, inadequate overview of activities in the control room and within the plant, and the general lack of awareness of plant status by operations and maintenance personnel, including the failure to observe the reactor vessel water level.

Personnel errors were evident on the part of the control room operator in opening the isolation valve, electrical maintenance personnel in opening the pump suction valve without permission from the control room, and planning personnel omitting the vent and drain valves during the preparation of the maintenance test package.