



Commonwealth Edison
Quad-Cities Nuclear Power Station
Post Office Box 216
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MAY 2, 1975

NJK-75-224

April 28, 1975

Mr. John F. O'Leary, Director
Directorate of Licensing Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20545

Reference: Quad-Cities Nuclear Power Station
Docket No. 50-265, DPR-30
Appendix A, Sections 1.0.A.4, 6.6.B.1.a

Dear Mr. O'Leary:

Enclosed please find Abnormal Occurrence Report No. 50-265/75-14 for Quad-Cities Nuclear Power Station. This occurrence was previously reported to Region III, Directorate of Regulatory Operations by telephone on April 21, 1975 and to you and Region III, Directorate of Regulatory Operations by telecopy on April 21, 1975.

This report is submitted to you in accordance with the requirements of Technical Specification 6.6.B.1.a.

Very truly yours,

COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION

N. J. Kalivianakis
Station Superintendent

NJK/SRH/lk

cc: Region III, Directorate of Regulatory Operations
J. S. Abel

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REPORT NUMBER: A0-50-265/75-14

REPORT DATE: April 28, 1975

OCCURRENCE DATE: April 18, 1975

FACILITY:

Quad-Cities Nuclear Power Station
Cordova, Illinois 61242

IDENTIFICATION OF OCCURRENCE:

Failure of Unit 2 High Pressure Coolant Injection (HPCI) system control valve to open during the Emergency Core Cooling System (ECCS) simulated automatic actuation test.

CONDITIONS PRIOR TO OCCURRENCE:

Unit 2 was in the refuel mode at zero power. An ECCS simulated automatic actuation test was being performed at the time of the occurrence.

DESCRIPTION OF OCCURRENCE:

During the ECCS testing on April 18, 1975 at 8:00 p.m., the HPCI system failed to start. It was noted by the operator that the HPCI auxiliary oil pump was cycling on and off and the emergency pump started. The auxiliary oil pump supplied both lubrication for the HPCI turbine and hydraulic pressure to open the turbine steam stop valve. The emergency lube oil pump supplies only lubrication for bearings.

The operator manually started the auxiliary oil pump and the HPCI system started successfully.

DESIGNATION OF APPARENT CAUSE:

The auxiliary oil pump starts automatically on a loss of coolant accident initiation signal when the control switch is in the auto position. The auxiliary oil pump supplies both the high pressure hydraulic system and a lower pressure hydraulic control system. A portion of the control system oil is also used to supply the bearing lubrication header.

The emergency oil pump is used to supply the bearing lubrication header only in the event the shaft driven and/or the auxiliary oil pumps become unavailable. The signal required to auto start the emergency oil pump is normal

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pressure on the high pressure header and low pressure on the bearing lubrication header.

During an auto initiation of the high pressure coolant injection system the auxiliary oil pump auto starts and runs until the shaft driven pumps are capable of supplying the required hydraulic pressure at which time the auxiliary oil pump will auto trip.

Due to the pressure switch settings however, the emergency oil pump would sense normal pressure on the high pressure hydraulic system while it was still sensing low pressure on the bearing lubrication header and would therefore auto start. As soon as the emergency oil pump started, the pressure would increase on the hydraulic control system header which would auto trip the auxiliary oil pump. The emergency oil pump cannot supply the control system header so the auxiliary oil pump would again auto start on a low pressure signal. During this cycling, there was not enough control oil pressure available to open the stop valve.

ANALYSIS OF OCCURRENCE:

Had an actual initiation signal for the HPCI system been received during plant operation, the operator would have had to manually start the auxiliary lube oil pump in order to open the turbine stop valve. He would have recognized this when he saw the pump cycling.

When such an initiation signal is received, the core spray and residual heat removal (RHR) pumps also start but do not inject water into the core until the pressure is reduced. If the HPCI system is not started fast enough or the leak size is greater than its capacity, the automatic blowdown system will open the electric relief valves to reduce pressure and allow both core spray pumps and four RHR pumps to add water to the core. Therefore; in spite of the HPCI system delayed start or failure to start, the core would have been adequately cooled to prevent any health hazard to plant personnel or the public.

CORRECTIVE ACTION:

The immediate action taken in response to this occurrence was to manually start the HPCI auxiliary pump. Follow-up corrective action was to raise the auxiliary oil pump pressure switch set point to eliminate the automatic trip. During an automatic initiation signal the auxiliary oil pump will auto start and remain running until manually tripped.

FAILURE DATA:

This is the first such event to occur at Quad-Cities Station; therefore, there are no safety implications based on cumulative experience.