Commonwealth Edit Company Dresden Generating Station 6500 North Dresden Road Morris, IL 60450 Tel 815-942-2920



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January 31, 1995

TPJ Ltr.: 95-0016

U.S. Nuclear Regulatory Commission Document Control Desk Washington, D.C. 20555

Licensee Event Report 95-002, Docket 50-249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10CFR50.73(a)(2)(iv).

Sincerely,

Thomas 'P. Joyce Site Vice President Dresden Station

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Enc.

PDR

cc: J. Martin, Regional Administrator, Region III NRC Resident Inspector's Office File/NRC File/Numerical

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NBSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On January 10, 1995, at 1424 hours, with Unit 3 shutdown, the Instrument Maintenance Department (IMD) was replacing the instrument isolation valve for Pressure Switch (PS) 3-263-51A. After replacing the valve, system integrity was verified. The instrument rack isolation valve was opened to place the instrument in service prior to performing Dresden Instrument Surveillance (DIS) 0201-01. Immediately after opening the valve, the instrument technician noticed fluctuations on the local instrument rack level indications and, after approximately 30 seconds, a SCRAM signal, Group II, and Group III isolations were received on a low reactor water level signal. The subsequent root cause investigation identified that air had been introduced into the system during the valve replacement and when the instrument was valved in, the air traversed its way through the reference leg, creating the false low level signal as a result of the air leaving the reference leg. Safety significance of this event is considered minimal, since all instrument functions were operational. No previous similar occurrences were identified.

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

EVENT IDENTIFICATION:

Unit 3 Scram from a False Reactor Vessel Low Water Level During the Replacement of an Isolation Valve for Pressure Switch (PS) 3-263-51A Due to Air Intrusion into the System

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3	Event Date:	01/10/95	Event	Time:	1424 hours
Reactor Mode: Shutdown	Mode Name:	Shutdown	Power	Level:	80
Reactor Coolant System	Pressure:	0 psig			

B. DESCRIPTION OF EVENT:

On January 10, 1995, while performing work instructions per Nuclear Work Request (NWR) D28447, an instrument technician was replacing the isolation valve for Pressure Switch (PS) 3-263-51A. The isolation valve had been identified to be leaking through during the performance of Dresden Instrument Surveillance (DIS) 0201-01, Reactor Vessel 600 PSI Scram Bypass Pressure Switch Calibration, in November 1994. In order to perform this work, the instrument rack isolation valve for PS 3-263-51A was closed in order to maintain reference leg integrity for the rest of the instruments on the medium range (+60" to -60") reference leg. Upon removal of the pressure switch isolation valve, a volume of instrument tubing between the valve and the pressure switch was drained. After replacing the valve, the instrument tubing was backfilled until water was identified to be leaking out of a loosened fitting at a high point. However, this process only ensured that half of the tubing was filled. In the past, craft capability had been used to fill and pressurize the system to ensure that the system was purged. The process of filling and pressurizing the volume to compress the air and then venting reduces the amount of air in the system. These steps are necessary to purge the system because bourdon tube type pressure switches inherently have a small amount of air trapped in the tube. After the system was believed to have been backfilled, it was then pressurized to 1000 psig for ten minutes. This test was successfully completed and the system was returned to 0 psig. The work instruction then instructed the technician to pressurize the volume to 13 psig to correct for head pressure and valve in the instrument. When the valve was opened, fluctuations were seen on the instrument rack local level indicators. After approximately 30 seconds, a SCRAM, Group II, and Group III isolations occurred. All systems performed as expected.

C. CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(iv), which requires reporting of any event that results in unplanned manual or automatic actuation of any engineered safety feature, including the Reactor Protection System.

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An engineering investigation began on January 10, 1995 to investigate the root cause of this event. After data retrieval and interviews with personnel involved with the actions leading to the SCRAM, it was determined that air intrusion into the system was the only realistic cause of this event. The time delay of approximately 30 seconds from the time that the instrument rack isolation valve was opened and the time that SCRAM from the false Reactor Low Level signal occurred and the level instrument fluctuations prior to the SCRAM are indications that air was introduced into the system. Further engineering review confirmed that the eleven inch level increase on the "A" medium range channel that was identified from the SCRAM data was a possible result from the volume of tubing that was drained during the valve replacement.

The root cause of the event was identified as follows:

- 1) Instructions in the work package were not specific to vent the volume at the high point and at the pressure switch. Failure to identify this step allowed air to be introduced into the system without being identified.
- 2) Craft capability did not recognize that a volume of air was trapped in the sensing line prior to valving the instrument back into the system.

A lack of specific work instructions and a failure by the worker to identify air in the system are two factors that led to the occurrence of this event.

D. SAFETY ANALYSIS:

The safety significance of this event was minimal. Due to the plants design, each loop of instrumentation can provide all trips and initiations. The air did not degrade the "A" medium range reference leg, partially due to the fact that the Reactor Vessel Water Level Instrumentation Backfill System was valved in during this event. If the air would have displaced water from the reference leg without it being refilled, all trips and initiations would have been available from the other loop. All systems operated as expected after the SCRAM.

E. CORRECTIVE ACTIONS:

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX).

Immediate corrective actions after this event included explaining the root cause of the event to operations and the IMD after the engineering review of the event was complete. These discussions were held approximately 24 hours after the event. The IMD revised the work instructions to purge any additional air from the system and complete the job which included calibration of the pressure switch. Additional corrective actions include the following:

The IMD will perform a review of this event with all IMD personnel to communicate the cause of event by 2/20/95 (249-180-95-00201).

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The Training Department will implement, as part of continuing training, a session for instrument technicians and work analysts to emphasize the implications of valve operations on an instrument rack to include proper

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methodology for ensuring our purge from sensing lines following the repair or replacement of components. This training will be completed by 6/2/95 (249-180-95-00202).

The System Engineer will provide information from this event to be included in Appendix J of the Work Analyst Writers Guide. A memo will be given to the lead work analyst by 2/17/95 (249-180-95-00203). The lead work analyst will incorporate this information into the Work Analyst Guide by 3/3/95. (249-180-95-00204). As an interim action until the IMD work analysts have reviewed this information, the system engineer has requested that the IMD work analysts send all work packages which require replacement of a valve in an instrument process line (liquid applications only) or the replacement of a bourdon tube type instrument (liquid applications only) to him for a technical review for the following systems: Reactor Protection, Emergency Core Cooling, Shutdown Cooling, and Isolation Condenser:

F. PREVIOUS OCCURRENCES:

A review of station records identified a previous event involving a spurious Unit 3 scram signal while performing DIS 0500-01, Reactor Vessel High Pressure Scram Pressure Switch Calibration, on October 26, 1994 (LER 94-019/050249). The event was caused by a pressure transient produced while valving in a pressure switch with a differential pressure across the isolation valve. During this event, there was no air introduced into the system and the scram signal was received immediately upon valving in the pressure switch.

G. COMPONENT FAILURE DATA:

N/A

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