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While attempting a Unit 2 reactor startup on February 3, 1984, a Digital Rod Position Indication (DRPI) Data A Failure alarm was received at 0107. At 0134 a Data B Failure alarm was received along with a DRPI Urgent alarm (total DRPI system failure). The Control Operator opened the reactor trip breakers in accordance with the Action Statement of Technical Specification 3.1.3.3. The unit was in Mode 3 with the Control Banks inserted and the Shutdown Banks withdrawn when the reactor trip breakers were opened. 60

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This event is attributed to failures of a central control card and a display card in the DRPI system. The cards were replaced with spares and the DRPI System declared operable.

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U.S. NUCLEAR REGULATORY COMMISSION APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

CILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)	SAGE (3)		
		YEAR SEQUENTIAL REVISION NUMBER NUMBER			
McGuire Nuclear Station, Unit 2	0 5 0 0 0 3 7 0	814 -0106-010	0 2 OF 0 2		

While attempting a Unit 2 reactor startup on February 3, 1984, a Digital Rod Position Indication (DRPI) [EIIS:AA] Data A Failure alarm was received at 0107. DRPI Data A was declared inoperable (DRPI System on ½ accuracy). Control Banks were reinserted into the core and the unit entered Mode 3 at 0133 hours. At 0134 a Data B Failure alarm was received along with a DRPI Urgent alarm (total DRPI system failure). The Control Operator opened the reactor trip breakers [EIIS:BRK] in accordance with the Action Statement of Technical Specification 3.1.3.3. The unit was in Mode 3 with the Control Banks inserted and the Shutdown Banks withdrawn when the reactor trip breakers were opened.

The purpose of the DRPI system is to accurately detect and display the position of all rods in the reactor core. Two DRPI card [EIIS:IMOD] failures occurred resulting in the loss of the system. It is uncertain as to which card failed first causing the Data A Failure, and which failed second. The corrective maintenance first included replacing the central control card #1 (Westinghouse Model 1055E20G01) which cleared General Warnings on all but 9 of the 53 rod position indications. This card was generating erroneous data to the display cards. A faulty display card (Westinghouse Model 1047F30G01) was causing a ground on the signal line to the display cards. This produced erroneous data which affected other display cards and also the DRPI information output to the Operator Aid Computer. The alarm circuits which generate the Data A and Data B Failure alarms and the Urgent Failure alarm were also affected. The faulty display card was replaced with a spare. During the past three years, only 2 central control cards out of 6 have failed and only 3 display cards out of 106 have failed for both units.

Replacing the faulty display card and the central control card with spares returned the DRPI system to openability. The continued operation of this system since February 3, 1984 has demonstrated the effectiveness of the corrective action.

When the DRPI system failed (Data A and Data B failure) the Control Operator opened the reactor trip breakers in accordance with the Action Statement of Technical Specification 3.1.3.3. (Positive Rod position information was required for any rod not fully inserted into the core.) Control Operators monitored reactor core parameters including neutron flux to ensure the reactor was in a stable shutdown condition.

The health and safety of the public were not affected by this incident.

AC Form 3664

DUKE POWER COMPANY P.O. BOX 33189 CHARLOTTE, N.C. 28242

HAL B. TUCKER VICE PRESIDENT NUCLEAR PRODUCTION TELEPHONE (704) 373-4531

March 5, 1984

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

Subject: McGuire Nuclear Station, Unit 2 Docket No. 50-370 LER 370/84-06

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a)(1) and (d), attached is Licensee Event Report 370/84-06 concerning digital rod position indication system failure resulting in a manual reactor trip which is submitted in accordance with §50.73 (a)(2)(iv). Initial notification of this event was made (pursuant to §50.72 Section (b)(2)(ii)) with the NRC Operations Center via the ENS on February 3, 1984. This event was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

#B. Tuchen 1 /10

Hal B. Tucker

PBN:glb

Attachment

cc: Mr. James P. O'Reilly Regional Administrator Region II 101 Marietta Street, NW, Suite 2900 Atlanta, Georgia 30303

> Records Center Institute of Nuclear Power Operations 1100 Circle 75 Parkway, Suite 1500 Atlanta, Georgia 30339

Mr. W. T. Orders NRC Resident Inspector McGuire Nuclear Station

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