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Dresden Nuclear Power Station
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February 25, 1992

CWS LTR #92-116

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

Licensee Event Report 92-05, Docket 050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(i)(B).

L. J. Gerner for 2/28/92

Charles W. Schroeder
Station Manager
Dresden Nuclear Power Station

CWS/cfq

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
NRC Resident Inspector's Office
File/NRC
File/Numerical

(ZDVR/491) 1

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2	Docket Number (2) 0 5 0 0 0 2 3 7	Page (3) 1 of 0 5
Title (4) Violation of Technical Specification Limit for Intermediate Range Monitor Operability Due to Personnel Error		

Event Date (5)			LER Number (6)			Report Date (7)			Other Facilities Involved (8)	
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)
0 2	0 3	9 2	9 2	0 0 5	0 0	0 2	2 1	9 2	N/A	
OPERATING MODE (9) N			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)							

POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 20.405(a)(1)(ii)	<input checked="" type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.71(b)	<input type="checkbox"/> 73.71(c)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
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LICENSEE CONTACT FOR THIS LER (12)

Name R. H. Johnson, Operating Experience Group Leader	Ext. 2674	TELEPHONE NUMBER AREA CODE 8 1 5 9 4 2 - 2 9 2 0
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)

<input checked="" type="checkbox"/> Yes (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	Expected Submission Date (15) Month Day Year
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 1024 hours on February 3, 1992, Unit 2 was in the Refuel Mode with preparations for startup in progress. The high voltage cable was observed to be disconnected from the chassis connector for Intermediate Range Monitor (IRM) 17. IRM 15 had been bypassed at 1400 hours on February 2, 1992, for maintenance work. Because IRM's 15 and 17 are both part of Reactor Protection System (RPS) Channel B, this left two operable IRM's (16 and 18) for RPS Channel B. This was less than the Technical Specification Table 3.1.1 requirement of a minimum of three operable IRM's for each RPS channel while in the Refuel Mode. As immediate corrective action, the cable was reconnected. The root cause of the event was attributed to personnel error in that the cable was not reconnected as required by an Instrument Maintenance surveillance procedure performed on February 1, 1992. During the performance of the surveillance, two of the four IRM's were operable for RPS Channel B for the latter part of the surveillance due to the disconnected high voltage cable for IRM 17. Contributing causes were procedure deficiency in that the surveillance procedure did not have a verification requirement; and management deficiency in that no administrative controls were in place that would have required such a verification requirement in this type of surveillance procedure. Corrective action initiated to prevent recurrence of this type of event included counseling the technician involved and procedure revisions. A previous event involving a disconnected cable was reported by LER 91-004/050249.

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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 Mwt rated core thermal power

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

EVENT IDENTIFICATION:

Violation of Technical Specification Limit for Intermediate Range Monitor Operability Due to Personnel Error

A. CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: February 3, 1992 Event Time: 1024 Hours
 Reactor Mode: N Mode Name: Refuel Power Level: 0%
 Reactor Coolant System (RCS) Pressure: 0 psig

B. DESCRIPTION OF EVENT:

At 1024 hours on February 3, 1992, Unit 2 was in the Refuel Mode with preparations for startup in progress. A Nuclear Quality Programs (NQP) inspector conducting a walkdown of the Control Room back panels observed that the high voltage cable was disconnected from the chassis connector for Intermediate Range Monitor (IRM) [IG] 17. IRM 15 had been bypassed at 1400 hours on February 2, 1992, for maintenance work. Because IRM's 15 and 17 are both part of Reactor Protection System (RPS) Channel B, this left two of the four operable IRM's (16 and 18) for RPS Channel B. This was less than the Technical Specification Table 3.1.1 requirement of a minimum of three operable IRM's for each RPS channel while in the Refuel Mode. The Station Control Room Engineer (SCRE) was immediately informed of the disconnected cable. An Instrument Maintenance (IM) Supervisor and IM technician were called to the Control Room. After discussion with the SCRE, the cable was immediately reconnected to comply with the requirements of Technical Specification Table 3.1.1. In addition, a visual verification was performed of the other IRM and Source Range Monitor (SRM) [IG] high voltage connectors to ensure that they were in the locked position.

An Emergency Notification System (ENS) phone call was made at 1113 hours on February 3, 1992, to inform the Nuclear Regulatory Commission (NRC) of this event. A subsequent ENS status update was made at 1619 hours on February 5, 1992, to confirm that the previous report had been required by Dresden Unit 2 License Condition 2.G.

C. APPARENT CAUSE OF EVENT:

This event is reported in accordance with 10CFR50.73(a)(2)(i)(B) which requires the reporting of any event or condition prohibited by Technical Specifications.

The root cause of this event is attributed to personnel error by an IM Control System Technician (CST) who failed to properly reconnect the high voltage cable for IRM 17 as required by Dresden Instrument Surveillance (DIS) 0700-04, IRM Rod Block/Scram Calibration Test, during shift 3 on Saturday, February 1, 1992. The CST had performed the surveillance before, and was on the Training Qualification Matrix for the job. The CST obtained a copy of DIS 0700-04, including Temporary Change Number 91-347, and obtained permission to perform the test from the SCRE at 1631 hours on February 1, 1992. DIS 0700-04 includes

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checking a number of alarms for each IRM channel. Procedure step F.27 requires disconnecting the high voltage cable from connector J7 at the rear of the chassis. Procedure step F.28 requires recording the voltage at J7 using a digital multimeter (DMM). Procedure step F.36 reads "DISCONNECT DMM and reconnect high voltage cable to J7." A miniature high voltage (MHV) coaxial connector is used in this application, and has a bayonet-lock coupling that requires a quarter turn to secure. The CST apparently failed to properly reconnect the high voltage cable, thus rendering IRM 17 inoperable upon completion of DIS 0700-04. When IRM 18 was bypassed later in the surveillance, two operable IRM's remained for RPS Channel B. Upon completion of the surveillance, however, three IRM's were operable for RPS Channel B. When IRM 15 was subsequently bypassed at approximately 1400 hours on February 2, 1992, two operable IRM's remained for RPS Channel B.

Procedure deficiency was a contributing factor in this event. DIS 0700-04 does not require a verification that the high voltage cable was properly reconnected. A verification should have been required because, with the reactor shutdown, no noticeable change in IRM response is seen with the high voltage cable disconnected. Consequently, observation of the IRM response after completion of the surveillance would not constitute a valid functional test of the IRM system.

Management deficiency was also a contributing factor in this event. Insufficient administrative controls were in place to require functional testing and/or independent verification following surveillance testing, contrary to the December 15, 1980, response to NUREG-0737. That response included a statement that "Functional tests and/or independent verification of the equipment status ... for all safety related equipment ... will be in effect for surveillance testing upon scheduled manning of the SCRE (Shift Control Room Engineer - a licensed SRO) position." The station program for upgrading surveillance procedures includes the requirement that "An independent verification of proper safety-related system line-up shall be performed following surveillance testing. This may be accomplished by functional testing, use of a second qualified operator or automatic status monitoring." Procedure DIS 0700-04 had not been upgraded, however, and did not have an independent verification requirement. Prior to the upgrade program, independent verification for IM surveillance tests was limited to valve positioning audits.

D. SAFETY ANALYSIS OF EVENT:

The safety significance of having both IRM 15 and IRM 17 inoperable is minimal. RPS Channel A met Technical Specification requirements of having at least three IRM's operable, and, although RPS Channel B had two IRM's operable, the one-out-of-four twice logic would still have resulted in an IRM full core scram had the IRM Hi-Hi setpoints been exceeded.

Shutdown margin was previously demonstrated for Unit 2 Cycle 13 (the current cycle), ensuring that criticality would not occur with a single control rod withdrawn. During the time that the two IRM's for RPS Channel B were operable (less than one hour on February 1, 1992, and approximately 21 hours commencing at 1400 hours on February 2, 1992), Unit 2 remained in the Refuel Mode which allows withdrawal of only one rod at any given time. Consequently, criticality could not have been achieved during this time period.

Had the disconnected high voltage cable not been discovered prior to reactor startup, the safety significance would still have been minimal. Cycle specific plant transient analyses credit only Average Power Range Monitor (APRM) [IG] (not IRM) scrams as a means of terminating transient events. For these reasons, there was no degradation of safety as a result of this event.

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E. CORRECTIVE ACTIONS:

The following corrective actions were initiated to prevent recurrence of this type of event:

1. The IM Department and Electrical Maintenance (EM) Departments conducted a review prior to Unit 2 startup to identify procedures performed during the Unit 2 outage which lack verification, and which have the potential for an undetected failure to reconnect a cable or lifted lead.
 - a. IM and EM staff verified that such reconnections were properly made prior to Unit 2 startup. No other cases of failure to reconnect a cable or lifted lead were found.
 - b. A similar review for Unit 3 will be completed prior to Unit 3 startup by the IM Department (237-200-92-02601) and the EM Department (237-200-92-02602).
2. The IM Department verified that DIS 0700-04 was properly completed prior to Unit 2 startup.
3. The IM Department reviewed other work performed between January 20, 1992, and February 2, 1992, by the CST who performed DIS 0700-04. No other deficiencies were found.
4. NQP, at the station's request, added the Auxiliary Electric Equipment Room panels and preamplifier racks on the drywell catwalk to their walkdowns that were completed prior to Unit 2 startup. No other deficiencies were found.
5. The CST was interviewed by the Production Superintendent and counseled on the importance of self-checking.
6. The IM and EM Departments reviewed all IM and EM procedures and identified 16 IM and 2 EM procedures which lack necessary verification requirements.
 - a. Between February 5 and February 26, 1992, Dresden Administrative Procedure (DAP) 09-03, Checklist B, "Electrical/Instrument Maintenance Procedure Temporary Alteration Sign-Off Checklist," was used to document necessary verification for procedures lacking such.
 - b. Temporary changes to 1 EM procedure and 4 IM procedures and revisions to 1 EM procedure and 12 IM procedures were implemented by February 26, 1992, to add verification requirements.
 - c. The IM Department will implement procedure revision to supersede the temporary changes to the 4 IM procedures (237-200-92-02603).
 - d. The EM Department will implement a procedure revision to supersede the temporary change to the one EM procedure (237-200-92-02604).
 - e. The Maintenance Department will clarify the requirement for functional tests and/or independent verification of status of safety-related equipment for surveillance testing to station administrative controls on procedures (237-200-92-02605).

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F. PREVIOUS OCCURRENCES:

LER/Docket Numbers Title

91-004/050249 Unplanned SBGTS Auto-Start During Area Radiation Monitor Calibration Due to Personnel Error

While Instrument Maintenance was performing DIS 1800-2, Area Radiation Monitor [IL] Calibration, an unplanned automatic start of the Standby Gas Treatment System [BH] and isolation of the Unit 2 and Unit 3 Reactor Building Ventilation System occurred. Review of the event with the Instrument Mechanic revealed that a cable supplying an indicator trip unit associated with the Channel A Fuel Pool Area Process Radiation Monitor had been mistakenly disconnected. Investigation of that event did not identify lack of independent verification as a contributing cause to the event, however.

G. COMPONENT FAILURE DATA:

This event did not involve component failure. Therefore, this section is not applicable.