NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0304), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 2	05000237	1 OF 5

TITLE (4)
Inadventant High Pressure Coolant Injection Isolation 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 NAME	DOCKET NUMBER
05	20	97	97	-- 012 --	00	06	18	97	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1
POWER LEVEL (10)	85

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(3)(i)		50.73(a)(2)(iii)		73.71(b)
	20.2203(a)(1)		20.2203(a)(3)(ii)	X	50.73(a)(2)(iv)		73.71(c)
	20.2203(a)(2)(i)		20.2203(a)(4)	X	50.73(a)(2)(v)		OTHER
	20.2203(a)(2)(ii)		50.36(c)(1)		50.73(a)(2)(vii)		(Specify in Abstract below and in Text, NRC Form 366A)
	20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(viii)(A)		
	20.2203(a)(2)(iv)		50.73(a)(2)(i)		50.73(a)(2)(viii)(B)		
	20.2203(a)(2)(v)		50.73(a)(2)(ii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
R. Jackson, Maintenance Staff Ext. 2483	(815) 942-2920

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

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

On May 20, 1997 at approximately 0315, a High Pressure Coolant Injection (HPCI) Isolation occurred during the performance of Dresden Instrument Surveillance (DIS) 2300-03, High Pressure Coolant Injection Low Reactor Pressure isolation Channel Functional Test. The isolation was caused by an Instrument Maintenance (IM) 'B' technician connecting his digital multi-meter (DMM) across two terminals while in the resistance mode.

The technician was assigned to verify a relay's change of state by measuring 125 Vdc across the terminals. The technician did not see the desired response for the test so he removed his test leads to perform a continuity check. After the satisfactory check of the leads he reconnected one lead and before connecting the second lead he noticed the DMM was still in the resistance/continuity mode. While changing modes of operation on the DMM, the second lead came into contact with the circuit being tested. This completed the electrical path to cause the HPCI isolation signal.

The root cause of this event has been attributed to failure of the IMD technician to self-check while re-installing his test leads. The technician failed to ensure that his test leads were in a safe condition while changing the DMM modes of operation. Corrective actions include IMD establishing a Peer Check Program.

This event is reportable pursuant to 10.CFR50.73(a)(2)(iv) and (a)(2)(v). The safety significance was determined to be minimal.

PLANT AND SYSTEM IDENTIFICATION:

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

Energy Industry Identification System (EIIS) codes are identified in the text as [XX] and are obtained from IEEE Standard 805-1984, IEEE Recommendation Practice for System Identification in Nuclear Power Plants and Related Facilities.

EVENT IDENTIFICATION:

Inadventant High Pressure Coolant Injection Isolation Due to Personnel Error

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2(3) Event Date: 05/20/97 Event Time: 0315

Reactor Mode: 1(4) Mode Name: Run(Refuel) Power Level: 85(0)

Reactor Coolant System Pressure: 1000(0) psig

B. DESCRIPTION OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(iv), which requires the reporting of any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature(ESF). Additionally, it is reported under 10CFR50.73(a)(2)(v), which requires the reporting of any event or condition that alone could have prevented the fulfillment of a safety function of structures or systems that are needed to: b) remove residual heat, or d) mitigate the consequences of an accident.

On May 20, 1997 three Instrument Maintenance (IM) technicians were assigned to perform Dresden Instrument Surveillance DIS 2300-03 'High Pressure Coolant Injection (HPCI) Low Reactor Pressure Isolation Channel Functional Test'. This surveillance is performed on a monthly (every twenty-eight days) basis. During this performance of the surveillance, only Division 1 Channel C was performed. A Control Systems Technician (CST), and two IM 'B' technicians were assigned to perform this job.

A pre-job briefing was held to discuss the work performed. The briefing used Checklist D of DAP 15-06 Revision 17, which is the *Supervisor and Crew Pre-job Briefing*. The crew's supervisor performed the pre-job briefing. During the pre-job briefing, all aspects of the job were reviewed. All workers ensured they had an understanding of the work package, what work was to be done, how it was to be done, their job locations, their responsibilities, expectations and if any questions or problems arise to contact the IM Supervisor. Also Maintenance Standards, such as S.T.A.R., were reviewed.

Permission to perform DIS 2300-03 was given by the Unit Supervisor at 0243. The technicians started the surveillance at 0310. The CST was located at the 2202-73A panel on the 538' elevation of the Unit 2 Turbine Building. He was to operate the Master Trip Unit (MTU) and lead the test. One IM 'B' was located in the Control Room on the Unit 2 side between the NSO desk and the Site Event Recorders. He was coordinating with the NSOs and the field tech for the performance of the test and recording data. The last IM 'B' was at the 902-39 panel located in Auxiliary Electrical Equipment Room (AEER). He was to monitor voltage at the terminal strip.

Sound powered communication was established between the three technicians. The CST performed the appropriate steps. The IM 'B' in the AEER connected a Digital Multimeter (DMM) at Panel 902-39 terminals CC-41 and CC-43, set to monitor approximately 125 Vdc. The IM B experienced some difficulty with the test leads (mini-grabbers) staying connected to the terminals. When he had a good connection he informed the CST who performed the checks of the MTU, and verified conditions in step I.7.n. The IM 'B' in AEER verified approximately 0 Vdc in step I.7.o. and informed CST of the satisfactory results. The CST then proceeded to check the setpoint trip by lowering the calibrator current until the DMM at Panel 902-39 AEER changed state. He received the tripped indication at the MTU but the IM 'B' at AEER did not observe the expected 125 Vdc indication and informed the CST. The CST used three way communications to verify the IM 'B' was connected correctly then directed him to disconnect his DMM and check the leads and DMM.

The IM 'B' disconnected the DMM and changed the mode of operation from volts DC to resistance/continuity. He then checked the leads and DMM by connecting them together. After the satisfactory check of the leads he reconnected one lead and as he was connecting the second lead he noticed he was still on the resistance/continuity mode. While changing modes of operation on the DMM he came into contact with the circuit being tested. This in result completed the electrical path to cause the HPCI isolation signal at 0315.

Upon the HPCI [BJ][JM] Isolation signal, the Unit 2 HPCI 4 and 5 valves went closed. The Unit Supervisor declared HPCI inoperable and entered a 14 day LCO TS 3.5.A. He instructed the IM's to complete DIS 2300-03 in order to exit the short duration time clock. He exited the 2 hour time clock but remained in the 14 day LCO leaving HPCI inoperable until they were confident what caused the isolation.

At 0319 the Unit 2 NSO verified HPCI Isolation signal was clear. He reset the HPCI Isolation signal and restored the HPCI system by opening the isolation valves.

At 0400 The Unit Supervisor exited the 14 day LCO based on all the information provided by the IM's that the isolation was caused by the surveillance and a prompt investigation would be initiated on days.

At 0430 an ENS Phone call was made per SAF 1.12 within four hours for the inadvertent HPCI Isolation.

There were no other inoperable systems, structures, or components that contributed to the event.

C. CAUSE OF THE EVENT:

The IMD 'B' technician installing the test meter was performing this surveillance for the first time. He was qualified to perform this support role based upon his knowledge in using the meter. This task is normally performed by a 'B' technician in which craft capability is used.

During the interview the technician said that he was comfortable in performing this task and was familiar with the STAR technique. He stated that STAR was being used while re-installing the meter test leads. However, he inadvertently touched the terminal strip while changing the meter mode from resistance to voltage. This resulted in auto-isolation of Unit 2 HPCI. An interview with the FLS found that all IMD technicians were comfortable with their job assignments and had no concerns. The FLS also indicated that during the pre-job briefing he mentioned to the technicians to ensure STAR is performed while conducting their tasks.

During the investigation of this event, it was found that workers experienced difficulty in installing test leads at the panel terminal strip(CC40-CC43) while performing this surveillance in the past. As a result of these problems, work request #960086891-01 was initiated to install banana jacks to facilitate monitoring of voltage at these points. The WR was initiated on 9/18/96 and is scheduled to be worked on 7/28/97.

The root cause of this event was found to be a failure of the IMD "B" technician to perform self-checking while re-connecting the test meter leads [Personnel Error-procedural, NRC Cause Code A]. The technician had experienced difficulty in the meter test leads (mini-grabbers) staying connected to the terminal points during the initial part of the test and later could not obtain a voltage reading. Consequently, the technician disconnected the meter test leads to check the connection and the meter. In the process of checking the meter and test leads the technician changed the meter mode from voltage to resistance. After performing this check, the mechanic began to reconnect the leads. The first lead was connected and in the process of connecting the second lead he noticed that the meter was still in the resistance/continuity mode. With one hand holding the test lead next to the terminal and while changing the meter mode with the other hand, the technician inadvertently touched the terminal with the lead. This provided a short circuit path across the master trip unit contact for the reactor low pressure signal in the HPCI auto-isolation logic. Consequently, the Unit 2 HPCI isolation valves 2301-4,5, 35 and 36 auto-closed.

The "B" technician failed to ensure that his test leads were in a safe position while changing the meter mode of operation.

There was one contributing cause to this event. The failure to schedule and perform work request 960086891-01 in a timely manner contributed to this event.

D. SAFETY ANALYSIS:

During this event, an HPCI auto-isolation was initiated from an inadvertent actuation. The NSO was immediately able to clear the auto-isolation signal and returned the system to normal within 45 minutes. Since the auto-initiation logic was not defeated during this event and HPCI was available after system reset, adequate reactor core cooling was available to be provided by HPCI in the event of a small break LOCA. In addition, the Automatic Depressurization System was available to depressurize the reactor primary system to enable cooling water injection by the Low Pressure Coolant Injection and Core Spray systems. As a result, the safety significance of this event was minimal.

E. CORRECTIVE ACTIONS:

1) Install banana jacks at the terminal points required for the surveillance. (WR 960086891-01) (NTS #237-180-97-01203)

2) Establish a Peer Check Program within IMD. (NTS #237-180-97-01201)

3) Train all Instrument Maintenance Technicians in self-checking to include demonstration on a "STAR" simulator. (NTS #237-180-97-01204)

4) Maintenance Staff will submit this event for inclusion into the required reading material for all maintenance departments. (NTS #237-180-97-01202)

F. PREVIOUS SIMILAR OCCURRENCES:

There were no previous similar events found involving technicians incorrectly utilizing measurement and test equipment.

G. COMPONENT FAILURE DATA:

Not applicable.