

NRC FORM 366 (5-92)			U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95					
LICENSEE EVENT REPORT (LER)						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 (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.					
FACILITY NAME (1) Dresden Nuclear Power Station, Unit 3						DOCKET NUMBER (2) 05000249			PAGE (3) 1 OF 5		
TITLE (4) Isolation Condenser Spurious Group V Isolation Due To Steam Flash In Condensate Return Line Due to Design/Installation Deficiency											
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 None		DOCKET NUMBER
03	29	97	97	004	00	4	25	97	FACILITY NAME		DOCKET NUMBER
OPERATING MODE (9)		3		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		000		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)		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 P. Garrett, Plant Engineering						Ext. 2713			TELEPHONE NUMBER (Include Area Code) (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
X YES (If yes, complete EXPECTED SUBMISSION DATE).				NO					08	15	97

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

On March 29, 1997, at approximately 0534, with Unit 3 in Mode 3, Shutdown for a refueling outage, a spurious Primary Containment Group V Isolation occurred after Operations Department performed a valve lineup in accordance with Dresden General Procedure (DGP) 02-03, "Reactor Scram" to secure the Isolation Condenser (ISCO) [BL] from Standby and prior to placing the Shutdown Cooling System (SDC) in service. The outboard ISCO reactor inlet isolation valve, 3-1301-3 went closed from the open position as designed. This was the only valve that moved during the isolation. All other ISCO isolation valves had already been closed in accordance with DGP 02-03. In addition, the Group V isolation signal could not be reset. Troubleshooting of the inability to reset the Group V isolation signal will be performed. The cause of the event has not yet been determined and will be provided in a supplement to this LER. The safety significance of this event was minimal.

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NRC FORM 366A (5-92)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95							
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

PLANT AND SYSTEM IDENTIFICATION

General Electric - boiling water reactor - 2527 Mwt rated core thermal 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.

Isolation Condenser System [BL]

EVENT IDENTIFICATION:

Isolation Condenser Spurious Group V Isolation Due To Steam Flash In Condensate Return Line Due to Design/Installation Deficiency

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: 03/29/97 Event Time: 0534
 Reactor Mode: 3 Mode Name: Shutdown Power Level: 0%
 Reactor Coolant System Pressure: 106 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 that results in the manual or automatic actuation of any Engineered Safety Feature (ESF).

On March 29, 1997, at approximately 0534, with Unit 3 in the Shutdown Mode for a refueling outage (D3R14), a spurious Primary Containment Group V Isolation occurred after Operations Department performed a valve lineup in accordance with Dresden General Procedure (DGP) 02-03, "Reactor Scram" to secure the Isolation Condenser (ISCO) [BL] from Standby and prior to placing the Shutdown Cooling System (SDC) in service. At approximately 0532, the Nuclear Station Operator (NSO) [Licensed Reactor Operator] had completed closing valves 3-1301-1 and 3-1301-2, ISCO reactor outlet isolation valves, and valve 3-1301-4, ISCO reactor inlet isolation valve. Valve 3-1301-3, ISCO reactor inlet isolation valve, was already closed which is its normal position. Valve 3-1301-3 was then opened at approximately 0533. Valves 3-1301-17 and 3-1301-20, ISCO vent to main steam line inboard/outboard isolation valves, went closed after valve 3-1301-3 was opened. Opening valve 3-1301-3 and, the resultant interlocked automatic closure of valves 3-1301-17 and 3-1301-20, completed the process of securing the ISCO from Standby in preparation for placing the SDC System in service.

Approximately 20 seconds after valve 3-1301-3 was opened, a High Temperature (150 degrees F) alarm was received for the tube (reactor) side of the ISCO. This indicated that hot condensate was moving through the condensate line affecting the temperature elements at the ISCO tube inlet, upstream of valve 3-1301-3. This could be indicative of a potential water hammer in the condensate line.

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The Group V isolation was received in the Unit 3 Control Room (CR), 105 seconds after the 3-1301-3 valve was opened. The outboard condensate return isolation valve, 3-1301-3 went closed from the open position as designed. This was the only valve that moved during the isolation. All other ISCO isolation valves had already been closed in accordance with DGP 02-03.

At 0804 an ENS notification was made. At 0851, an attempt was made to reset the Group V isolation signal, but the signal would not reset. The ISCO was later taken Out-of-Service (OOS) to support refueling outage activity on March 29, 1997, at approximately 1223.

When valve 3-1301-4 is closed, the reactor water between the valves 3-1301-3 & -4 is isolated at reactor pressure and temperature. Reactor pressure during this evolution was approximately 106 psig. It is postulated that when the 3-1301-3 valve was opened, the hotter condensate downstream of the 3-1301-3 valve came in contact with the cooler condensate upstream of valve 3-1301-3 resulting in the formation of water vapor in the line. This resulted in a rush of water vapor/hot water to flow through valve 3-1301-3 affecting the annubar flow element of the ISCO condensate return Differential Pressure Indicator Switches (DPIS) 3-1349-A and DPIS 3-1349-B causing the switches to actuate. Contributing to this is the higher sensitivity the annubar flow element experiences in the reverse direction (from the Reactor).

Troubleshooting of the inability to reset the Group V actuation signal will be performed. Group V isolation signal control circuit problems may have also caused the Spurious Group V isolation signal initiation.

The root cause investigation will further review the above issues, as well as any new information, to finalize the cause of the event. It is recognized by Dresden Station that there have been numerous spurious Group V isolations on Unit 3 in the past. The supplemental LER will provide the root cause of the event and information on action plans to prevent recurrence.

No other system or component inoperabilities have been identified which contributed to the event.

C. CAUSE OF EVENT:

The preliminary cause of the event is a design/installation deficiency, NRC Cause Code B. The design/installation did not provide for sufficient cooling of the condensate between valves 3-1301-3 & -4. This resulted in the condensate between valves 3-1301-3 and 3-1301-4 to flash to steam resulting in a surge of water vapor/hot water through valve 3-1301-3, actuating DPIS 3-1349-A and DPIS 3-1349-B, initiating the Group V isolation signal. The cause will be further evaluated and provided in a supplement to this LER.

The cause of the inability to reset the Group V actuation signal has not yet been determined. The cause will be further evaluated and provided in a supplement to this LER.

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D. SAFETY ANALYSIS:

The purpose of the Isolation Condenser (ISCO) is to control pressure and/or remove decay heat from the reactor inventory during periods when the normal heat sink is unavailable. The Isolation Condenser can be manually initiated. An automatic initiation occurs when reactor pressure is sustained at greater than or equal to 1070 psig for 15 seconds. Since Unit 3 was in the shutdown mode and reactor pressure was less than 150 psig, operability of the Isolation Condenser was not required.

Had this event occurred at power, the consequences of a postulated accident would be mitigated by the HPCI system or the Automatic Depressurization [SB] system in conjunction with the Low Pressure Coolant Injection (LPCI) [BO] and Core Spray [BM] systems. All of the Isolation Condenser valves automatically responded as required. Therefore, the safety significance of the event is considered to be minimal.

E. CORRECTIVE ACTIONS:

Troubleshooting of the inability to reset the Group V actuation signal will be performed, appropriate repairs will be performed. (2491809700401)

If the results of the troubleshooting of the Group V isolation signal control circuit identifies a common mode failure, an action plan to address this will be developed. (2491809700402)

When the root cause of this event is identified, the need to provide a supplement LER to update the root cause of previous events will be considered. (2491809700403)

Appropriate operating procedures will be evaluated for potential changes/improvements to the ISCO system operation during configuration lineup. (2491809700404)

The effects of a potential water hammer on the ISCO condensate lines will be reviewed by engineering. (2491809700405)

This event will be reviewed by the Plant Operating Review Committee prior to Unit 3 startup to ensure unit readiness for startup. (2491809700406)

The results of the root cause investigation and any significant corrective actions will be reported in a supplement to this LER. This supplement will address prior similar occurrences and the effectiveness of their corrective actions. (2491809700407)

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F. PREVIOUS OCCURRENCES:

<u>LER/Docket Number</u>	<u>Description</u>
96-008S1/05000249	On June 21, 1996, at approximately 0941, with Unit 3 in the Shutdown Mode during a forced outage, a spurious Primary Containment Group V Isolation occurred after Operations Department performed a valve lineup to remove the ISOC from standby. The cause was an insufficient filling of the ISCO system due to inadequacies of Dresden Operating Procedure.
95-015/05000249	On September 5, 1995, at 0424 and 2045 with Unit 3 in the refuel mode two spurious Primary Containment Group V Isolation occurred during lineup of the Isolation Condenser for Unit 3 startup. The cause was attributed to trapped air between the inboard and outboard condensate return isolation valves.
93-011/05000249	On April 21, 1993, with Unit 3 in cold shutdown, a spurious Group V Primary Containment isolation occurred during the MO3-1301-3 valve VOTES testing. The cause was attributed to the inadvertent draining of the volume between valves 3-1301-3 & 4 following a calibration surveillance.
92-22/05000249	On October 20, 1992, while performing DGP 1-1, Unit 2(3) Normal Unit Startup, the Isolation Condenser shell side water temperature increased to the point of steaming. After the reactor pressure reached 150 psig, the Isolation Condenser was manually isolated and declared inoperable. The cause of this event was attributed to the failure to backfill the volume between valves 3-1301-3 & 4 following maintenance.

G. COMPONENT FAILURE DATA:

There is no component failure identified with this event; therefore, this section is not applicable.