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October 3, 1995

JSPLTR 95-0002

U.S. Nuclear Regulatory Commission
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Licensee Event Report 95-015, Revision 0, Docket 50-249 is being submitted pursuant to 10CFR50.73(a)(2)(iv), which requires the reporting of any event that results in the manual or automatic actuation of any Engineering Safety Feature (ESF).

Sincerely,



J. Stephen Perry
Vice President
BWR Operations

JSP/GC:pt

Enclosure

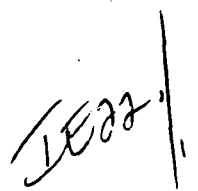
cc: H. Miller, Regional Administrator, Region III
NRC Resident Inspector's Office
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LICENSEE EVENT REPORT (LER)

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 (MNBB 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 6

TITLE (4)
Isolation Condenser Group V Isolation Due to Air Trapped at Piping High Point Between the Isolation Condenser Inboard and Outboard Condensate Return Isolation Valves

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
09	05	95	95	-- 015 --	00	10	03	95	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N	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: Gerald Cooper, System Engineer
Ext. 2270

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)

YES (If yes, complete EXPECTED SUBMISSION DATE). X NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

On September 5, 1995, at 0424 and 2045 with Unit 3 in the refuel mode two spurious Primary Containment Group V Isolations occurred during line up of the Isolation Condenser for Unit 3. The Isolation Condenser isolation valves automatically responded as required. The first event occurred when the 3-1301-4 valve was opened. The second event occurred when 3-1301-3 valve was opened. The valve manipulations were performed in accordance with Dresden General Procedure 01-S1, Unit 3 Normal Startup Checklist Interim Procedure 95-007, and Dresden Operations Procedure 1300-01, Standby Operation of the Isolation Condenser System. The isolations resulted from high flow signal from DPIS 3-1349-A and 3-1349-B. The cause of the event is the installed piping configuration has a 1 inch reverse slope which can trap air. A procedure was developed to fill and vent the piping. Isolation Condenser operability is not required whenever the reactor pressure is less than 150 psig; also, had this event occurred under power operation, the High Pressure Coolant Injection or Automatic Depressurization would have been available for reactor pressure control. The safety significance of the events is minimal. Two previous LERs have been submitted on spurious Group V isolations attributed to air in the condensate piping.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

PLANT AND SYSTEM IDENTIFICATION:

Dresden Unit 3 is a General Electric boiling water reactor with 2257 Mwt rated core thermal power. System identification is Reactor Isolation Condenser System [BL]. Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION:

Isolation Condenser Group V Isolation Due to Air Trapped at Piping High Point Between the Isolation Condenser Inboard and Outboard Condensate Return Isolation Valves

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: 09/05/95 Event Time: 0424 and 2045
 Reactor Mode: N Mode Name: Refuel Power Level: 0%
 Reactor Coolant System Pressure: 0 psig

B. DESCRIPTION OF EVENT:

On September 5, 1995, at 0424 and 2045 with Unit 3 in the refuel mode two spurious Primary Containment Group V Isolations occurred during valve line up of the Isolation Condenser for Unit 3 startup. All of the Isolation Condenser isolation valves automatically responded as required.

A Group V isolation was received in the Unit 3 Control Room (CR) at 0424 on September 5, 1995, as the Unit Nuclear Station Operator (NSO) was opening valve 3-1301-4, per Dresden General Procedure (DGP) 01-S1, Unit 3 Normal Startup Checklist, Interim Procedure (IP) 95-007, and Dresden Operations Procedure (DOP) 1300-01, Standby Operation of the Isolation Condenser System. An ENS phone call was made and Action Request 950047416 was initiated. DGP 01-S1 (IP-95-007) provided direction to place the Isolation Condenser [BL] in Standby per DOP 1300-01. Prior to entering DOP 1300-01 the following valves were in the closed position; 3-1301-1, 3-1301-2, 3-1301-3 and 3-1301-4.

DOP 1300-01, provides instructions to manipulate valves in the following sequence: verify 3-1301-03 is closed, and open 3-1301-4. (This is when the Group V isolation signal was received.) While responding to the isolation signal, it was identified that DPIS 3-1349B, flow isolation switch, was "stuck" at 15 inches of water pressure (IW). The trip setpoint for this switch is 11.5 IW. Additionally, DPIS 3-1349A, flow isolation switch, was indicating 4 IW. Without flow through the line, both gages should have been reading 0 IW.

Work Request (WR) 95007708 was generated to backfill the sensing line and calibrate switches DPIS 3-1301-1349A & B. Initial findings indicated that there was air in the sensing lines because when both root valves were closed, the DPISs went to 0 IW. After the sensing lines were backfilled with a pressurized source of water, the DPIS switches were then placed back in service without incident. Both switches remained indicating 0 IW.

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

By the end of the second shift, September 5, 1995, the cause of air in the lines had been identified. A Local Leak Rate Test (LLRT) had been performed on the volume between valve 3-1301-3 and 3-1301-4 on August 21, 1995, which required draining of the condensate return line and the DPIS sensing lines. Prior to attempting to place the Isolation Condenser into standby condition, the sensing lines had not been refilled.

On third shift, September 5, 1995, the Group V isolation signal was reset and Operations reentered DGP-01-S1. The Isolation Condenser was successfully placed into standby condition per DOP 1300-01. Then, while continuing on with DGP 01-S1, a second Group V isolation signal was received at 2045 while opening valve 3-1301-03. At this point it became obvious that none of the Isolation Condenser 12 inch diameter piping had been refilled prior to first attempt to place the Isolation Condenser into stand by mode, not just the instrument sensing lines which previously had been identified. Additionally, it was identified that a procedure did not exist which provided instructions for filling the Isolation Condenser system.

During the first shift, September 6, 1995, Discrete Component Operation (DCO) 95-029 was prepared in accordance with Dresden Administrative Procedure 07-43, Discrete Component Operation. This provided guidance to fill the Isolation Condenser piping upstream of valve 3-1301-4 to the Isolation Condenser. The DCO "cracked" open 3-1301-3, then filled the volume through valves 3-1301-32 & 33 until the Isolation Condenser piping was half-full as measured with temporary tygon tubing level indication. The DCO was completed successfully.

On second shift, September 6, 1995, the Group V isolation signal was reset and Operations reentered DGP 01-S1. The Plant Engineer and Master Instrument Mechanic (IM) were stationed at DPIS 3-1349A & B to observe switch indication as valves 3-1301-3 & 4 were manipulated via DOP 1300-01 and DGP 01-S1. Observations of the system instrumentation showed that the aforementioned problem persisted:

Opened 3-1301-4	Both switches went -4 IW then +5 IW and back to 0 IW in approximately 1-2 seconds.
Opened 3-1301-3	Both switches went to +30 IW and returned to 0 IW in approximately 1-2 seconds. A third Group V isolation was received. It was anticipated that a Group V isolation could occur during the valve operation and procedural instructions were written to identify that the isolation may occur. Therefore this occurrence was identified as not reportable.

As a result, an investigation team was established by the Station, September 6, 1995, with the Plant Engineering Supervisor as the team leader. The investigation team believed that air was trapped in the horizontal run of 12 inch pipe just downstream of valve 3-1301-3. It was identified that valve 3-1301-3 does not fully open because its opening stroke is "limited" by limit switches, thus, trapping air on the downstream side of the valve. Therefore, better venting instructions were implemented. This was accomplished by DCO 95-031 on September 6, 1995, which manually opened valve 3-1301-3, thus allowing any trapped air (at the valve) to be released to the Isolation Condenser.

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To confirm that venting had been achieved and that the venting corrected the spurious Group V isolation signals, DCO 95-031 also duplicated the valve manipulations performed by DGP 01-S1 and DOP 1300-01.

On the third shift September 6, 1995, the final steps of DCO 95-031 were performed, manipulating valves 3-1301-3 & 4 as described above. The Plant Engineer and Master IM were stationed at DPIS 3-1349A & B to observe switch indication as valves 3-1301-3 & 4 were manipulated. Again, observations of the system instrumentation showed that the aforementioned problem persisted:

- Opened 3-1301-4 Both switches went -30 IW back to 0 IW in approximately 1 second.
- Opened 3-1301-3 Both switches pegged to +30 IW and returned to 0 IW in approximately 1 second. A Group V isolation was not received.

As the venting performed by DCO 95-031 appeared to be unsuccessful, a subsequent review of the piping isometric drawing indicated a 1 inch differential elevation in a horizontal run of piping which could provide a high point air trap. As a result, more thorough venting would be required. DOP 1300-10, Isolation Condenser Fill and Vent, was prepared to vent and fill the Isolation Condenser system. DOP 1300-10 provides instructions to drain the piping upstream of valve 3-1301-3 and then opens valve 3-1301-4 using reactor vessel head to force water through the horizontal piping between valves 3-1301-3 & 4. The water level in the reactor had to be increased to just below the High Pressure Coolant Injection (HPCI) [BJ] and Isolation Condenser steam piping penetrations to provide sufficient water head to achieve the water velocity required to push any air through the condensate return line piping.

To confirm that venting had been achieved and that it corrected the problem, DOP 1300-10 also duplicated the valve manipulations performed by DGP 01-S1 and DOP 1300-01.

On second shift, September 7, 1995, DOP 1300-10 was performed, manipulating valves 3-1301-3 & 4 as described above. The Plant Engineer and Master IM were stationed at DPIS 3-1301-1349A & B to observe switch indication as valves 3-1301-3 & 4 were manipulated. Observations of the system instrumentation showed that the aforementioned problem no longer persisted:

- Opened 3-1301-4 Both switches went to +1 IW and back to 0 IW in approximately 1 second.
- Opened 3-1301-3 Both switches went to +1.5 IW and back to 0 IW in approximately 1 second.

The conclusion was that air was trapped in the piping between valves 3-1301-3 & 4. The fill and venting process performed by DOP 1300-10 effectively removed the air. The system and its instrumentation will perform its safety function as designed.

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C. CAUSE 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 Engineering Safety Feature (ESF).

It was determined that the volume between the valves 3-1301-3 & 4 cannot be adequately filled using normal fill practices due to the piping configuration. The root cause of this event is the installed piping configuration has a 1 inch reverse slope and as a result can trap air on the reactor side of the 3-1301-3 valve. When air is trapped in the piping between the valves, the air is compressed when either one of the valves is opened. The movement of the water across the sensing element during the air compression was sufficient to create a differential pressure which was greater than the switch actuation setpoint for a Group V isolation signal.

Contributing to the event was that it was not recognized that the instrument sensing lines and the 12 inch piping, prior to placing the Isolation Condenser into standby mode, needed to be filled and vented. Sufficient controls were not in place to ensure proper filling and venting was performed (procedure deficiency). Historically, the need to fill and vent the portion of piping between the valves had not been addressed.

It should be noted that there have been previous instances involving difficulty filling/venting the volume between valves 3-1301-3 and 4, as reported in LER 92-022/050249 and 93-011/050249. While these previous events did not have identical circumstances to the spurious isolations described in this report, review indicates that the corrective actions from the previous events did not include a proceduralized method for ensuring this piping volume is completely filled. Therefore, inadequate corrective action from the previous events is considered to be an underlying root cause.

D. SAFETY ANALYSIS:

The purpose of the Isolation Condenser 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 refueling 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 could 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. The safety significance of the event is considered to be minimal.

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E. CORRECTIVE ACTIONS:

The corrective action following the initial Group V isolation was to backfill the instrument sensing lines per Work Request 95007708, reset the Group V isolation signal and reenter Operations procedure DGP-01-S1.

DOP 1300-10, was created to vent and fill the Isolation Condenser system. The fill and venting process performed by DOP 1300-10 effectively removed the air.

A step will be added to DOP 1300-01 to appropriately verify that the condensate lines have been filled and vented.
 (Station Commitment Number (SCN): 249-180-95-01501)

An evaluation of the piping configuration for installation of a high point vent between the 3-1301-3 and 3-1301-4 valves was performed (ER 9503509). The evaluation determined, in part, that the installation of a vent is not justified because the venting can be performed satisfactory using DOP 1300-10.

A procedure for vent and fill of the Isolation Condenser condensate lines, for Unit 2, will be implemented. (SCN: 249-180-95-01502)

Based on continued evaluation of the Isolation Condenser valve operation for startup, the specific valve opening/ closing sequence given in the corrective actions section of LERs 92-045-03/050237 and 93-003-03/050249 have been revised.

Overall improvement of the Dresden Station Corrective Action Program has been a key focus area over the last year. The improvements to the Corrective Action Program were undertaken with the objective of preventing repeat events.

F. PREVIOUS OCCURRENCES:

LER/Docket Number Description

93-011/050249 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.

92-22/050249 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.