

Commonwealth Edison Company  
Dresden Generating Station  
6500 North Dresden Road  
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Tel 815-942-2920

**ComEd**

September 18, 1995

TPJLTR 95-0113

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

Licensee Event Report 95-016, Docket 50-237 is being submitted pursuant to 10CFR50.73(a)(2)(iv), any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)

Sincerely,



Thomas P. Joyce  
Site Vice President

TPJ/KR:pt

Enclosure

cc: H. Miller, Regional Administrator, Region III  
NRC Resident Inspector's Office  
File/NRC  
File/Numerical

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NRC FORM 366 (5-92)			U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95				
<b>LICENSEE EVENT REPORT (LER)</b>										
FACILITY NAME (1) Dresden Nuclear Power Station, Unit 2						DOCKET NUMBER (2) 05000237		PAGE (3) 1 OF 4		
TITLE (4) During Maintenance on the Reactor Protection System an Unexpected Group 2 and Group 3 Isolation Occurred Due to Opening the Common Neutral Circuit.										
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
08	26	95	95	-- 016 --	00	09	22	95	None	
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 Kirk Robbins, Instrument Maintenance EA						Ext. 2314		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
YES (If yes, complete EXPECTED SUBMISSION DATE).				X NO						

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

On August 26, 1995, at 1716 hrs, with the reactor core fully off loaded, a Group 2 and Group 3 Primary Containment Isolation (PCI) occurred while conducting maintenance on the Reactor Protection System (RPS) [JC]. During the replacement of Unit 2 scram contactor 2-0590-108F per Work Request (WR) 940095335, the neutral circuit was broken, resulting in the Drywell Pressure Hi-Hi relay (2-590-103D) and the Reactor Low Water Level relay (2-590-105D) to de-energize, initiating a 'B' Channel Group 2 and Group 3 PCI signal. The 'A' Channel RPS bus was de-energized for planned maintenance. This combination satisfied the logic for the Group 2 and 3 isolations. Valve AO-1601-23 closed as a result of the Group 2 Isolation signal. The cause of this event was that recent improvements in managerial methods have not been effective in implementing clear expectations regarding the authorization and performance of maintenance activities. No formal process exists that requires the documentation of the plant conditions and plant impacts assumed during maintenance planning. A process will be developed to clearly identify assumed the plant conditions and plant impacts of maintenance activities. Standby Gas Treatment, Reactor Building Ventilation and Drywell/Torus Vents operated as designed.

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

#### EVENT IDENTIFICATION:

During Maintenance on the Reactor Protection System an Unexpected Group 2 and Group 3 Isolation Occurred Due to Opening the Common Neutral Circuit.

#### A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2                      Event Date: 08/26/95                      Event Time: 1716  
 Reactor Mode: N              Mode Name: Refuel                      Power Level: 0%  
 Reactor Coolant System Pressure: 0 psig

#### B. DESCRIPTION OF EVENT:

On August 16, 1995, an Electrical Maintenance (EM) 'A' mechanic (non-licensed) was assigned to perform the field replacement of the scram contactors per WR 950095335. Work had been on going since July 31, 1995 in the shop bench testing the new contactors. WR 940095335 correctly required that this work be performed with only one channel of the RPS out of service (OOS) at a time. The OOS request specified three different sections; the 'A' Channel Scram Logic, 'B' Channel Scram Logic, and the A/B Backup Scram Solenoids. However, the OOS request did not specify the need to have only one channel of RPS OOS at one time.

The work instructions had been prepared with the intent that work in the field would be performed with only one RPS channel OOS at a time to limit the risk to a half scram in the event of an error. The Work Analyst (non-licensed) did not consider the risk of half group isolations.

A thorough pre-job briefing was conducted with the EM Supervisor prior to beginning the field work. The EM 'A' mechanic briefed the Unit Supervisor (licensed Senior Reactor Operator) on the job, and requested to know the status of the RPS OOS. The EM 'A' mechanic was told that the Scram Logic was OOS per the OOS request, and that the RPS 'A' Bus was de-energized and work was commenced.

On August 21, 1995, Work continued on the 'A' channel scram contactors during the afternoon shift. The OOS for the 'B' channel scram contactor maintenance was hung while work on the 'A' channel was in progress. This left RPS 'A' channel scram logic OOS, the RPS 'A' bus de-energized for maintenance, RPS 'B' channel scram logic OOS for maintenance, and the RPS 'B' bus energized from an alternate source. Containment Isolation is powered from their respective RPS buses. Work was completed on RPS 'A' channel on August 24, 1995.

On August 25, 1995, the EM 'A' mechanic attempted to start work on the 'B' channel relays. The work instructions required that the mechanic verify the 'A' channel scram lights to be lit as a method of verifying the 'A' channel had been returned to service. This was not possible since both scram logic trains were OOS. The Unit Supervisor informed the mechanic that step could not be completed with both trains OOS, and that a revision to the work instructions would be necessary to continue work.

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A package revision bypassing the step verifying 'A' channel energized was made without considering the precaution to take only one channel of RPS OOS at a time, nor considering the possibility of receiving 'B' channel half group isolations and the effect this would have with the RPS System in the existing abnormal configuration.

On August 26, 1995, at the beginning of afternoon shift, while disconnecting the leads to relay 2-0590-108F per the work instructions, the EM 'A' mechanic identified a questionable splice of the three wires connected at terminal 2-0590-108F-L3. At 1716 hrs, when the EM 'A' mechanic disconnected the wires to repair the splice, the neutral circuit was broken, de-energizing several down stream relays including the Drywell Pressure HI-HI RPS relay (2-0590-103D), initiating a Group 2 PCI on interlock, and Reactor Low Water Level RPS relay (2-590-105D), initiating a Group 3 PCI. Standby Gas Treatment, Reactor Building Ventilation and Drywell/Torus Vents operated as designed.

At 1818 hrs, relay 2-0590-108F was restored to normal and the Group 2 and 3 PCI signals were reset and at 1848 hrs, Reactor Building Ventilation was restarted and Standby Gas was secured.

The 4 hour ENS notification was made at 2100 hrs (event number: 29243).

#### C. CAUSE OF EVENT:

This report is submitted in accordance with 10CFR50.73 (a)(2)(iv), which requires reporting of any event that results in automatic or manual actuation of any Engineered Safety Feature (ESF) including actuation of the Reactor Protection System (RPS).

The cause of this event was that recent improvements in managerial methods have not been effective in implementing clear expectations regarding the authorization and performance of maintenance activities. No formal process exists that requires the documentation of the plant conditions and plant impacts assumed during maintenance planning. Evidence pointing to this conclusion is:

1. The failure of the OOS request to specify the need to have only one channel of RPS OOS at a time.
2. The failure the Work Analyst to consider Primary Containment Isolation System (PCIS) Logic during work package preparation.
3. The failure of Outage Management to properly integrate the maintenance tasks on the RPS MG set and the RPS scram contactors to minimize the risk of unexpected PCIS actuations.
4. The failure of the Work Analyst that revised the package to recognize that the plant conditions that existed when the revision was requested did not match the plant conditions assumed when the original work instructions were prepared.
5. The Operations Unit Supervisor allowed work on both RPS channels without considering the impact these activities would have on the plant.

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**D. SAFETY ANALYSIS:**

The safety significance of this event is minimal because the reactor fuel was fully off loaded and the ESF actuation signal was not generated as a result of actual plant conditions. The actuation signal was generated by separation of the neutral circuit for the RPS relays during maintenance with the reactor fuel fully off loaded.

**E. CORRECTIVE ACTIONS:**

**Immediate Corrective Actions:**

1. Operations verified Standby Gas Treatment started and Reactor Building Ventilation isolated.
2. Electrical Maintenance restored the neutral circuit to its original condition.
3. The isolation signals were reset.

**Additional Corrective Actions:**

1. A revision to the Work Analyst Guide to Package Preparation will formalize the development of a Plant Impact Statement in work packages. System or Plant conditions assumed during the development of a work package are to be clearly stated. (NTS 237-180-95-01601)
2. Conduct a review of the event with all involved departments at Department Tailgate. This tailgate will include the corrective action from this report. (NTS 237-180-95-01602)

**F. PREVIOUS OCCURRENCES:**

None.

**G. COMPONENT FAILURE DATA:**

None.