

Commonwealth Edison Company
Dresden Generating Station
6500 North Dresden Road
Morris, IL 60450
Tel 815-942-2920



December 12, 1995

PGHLTR 95-0038

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

Licensee Event Report 94-012, Revision 2, Docket 50-237 is being submitted pursuant to 10CFR50.73(a)(2)(iv) which requires the reporting of any condition that caused an inadvertent ESF actuation.

This supplemental report is being provided to clarify corrective actions for the event.

Sincerely,

A handwritten signature in cursive script, appearing to read "Peter G. Holland".

Peter G. Holland
Regulatory Assurance Supervisor

PGH/WM:pt

Enclosure

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

L:\8360\8301\pghltr.95\0038.95

9512180065 951212
PDR ADOCK 05000237
8 PDR

A Unicom Company

Handwritten initials, possibly "JE22", written in a cursive style.

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 (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 2					DOCKET NUMBER (2) 05000237			PAGE (3) 1 OF 5				
TITLE (4) Inadvertent Auto Start of 2A Core Spray Pump Due to Personnel Error Supplement												
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		
04	18	94	94	-- 012 --	02	12	12	95	None			
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)										
N		20.2201(b)		20.2203(a)(3)(i)			50.73(a)(2)(iii)		73.71(b)			
POWER LEVEL (10)		20.2203(a)(1)		20.2203(a)(3)(ii)			50.73(a)(2)(iv)		73.71(c)			
000		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 Walter J. Marcis, Staff Engineer						TELEPHONE NUMBER (include Area Code) Ext. 2850			(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 April 18, 1994 at 1741, with Unit 2 at 99% rated core thermal power, the 2A Core Spray Pump (CS) started inadvertently during modification work in the 2/3 Diesel Generator (DG) cubicle at Bus 23-1. This resulted in core spray flow through the minimum flow lines.

While transferring wires on the auxiliary switch, the worker lost control of a wire, and its lug subsequently shorted across two other energized terminals. He taped up the loose wire lug and stopped work. Operators in the control room responded to alarms, checked drywell pressure and reactor water level as proper and then opened the 2A CS Pump Circuit breaker and placed it out-of-service. After an investigation, the wiring was completed and tested, and the 2A CS Pump was returned to service at 2009 hours.

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.	
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6)		PAGE (3)
Dresden Nuclear Power Station, Unit 2		05000237	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
			94	-- 012 --	02
					2 OF 5

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

EVENT IDENTIFICATION:

Inadvertent Auto Start of 2A Core Spray Pump Due to Personnel Error

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2 Event Date: 4/18/94 Event Time: 1741 hrs.
 Reactor Mode: N Mode Name: Run Power Level: 99%
 Reactor Coolant System Pressure: 1000 psig

B. DESCRIPTION OF EVENT:

On April 18, 1994, at 1741 hours, work was in progress at 4KV Bus 23-1 Cubicle 14, DG 2/3 Feed, to replace the auxiliary switch per Modification M12-0-91-018B, NWR D-04456, Work Package 11. Bus 23-1 and its cubicle for the 2A Core Spray (CS) Pump were in service. The Unit 2/3 Emergency Diesel Generator (DG) was out of service in day 1 of a 7 day LCO. The circuits on the auxiliary switch were energized.

While transferring the wires from the existing auxiliary switch to the new one, the worker lost control of a wire whose lug then touched 2 other terminals. That momentary contact energized the 2A Core Spray Pump relay 1430-114A, which started the pump.

The initiation of 2A Core Spray Pump was detected by the worker, who saw the spark at the wire terminals and heard a nearby 4KV circuit breaker close. He taped up the loose wire lug and stopped work.

After receiving alarms for running the Core Spray Pump, the Nuclear Station Operator (NSO) noted that drywell pressure, reactor water level, and electrical power were all normal. The 2A CS Pump Control Switch was placed in Pull-To-Lock position which stopped it and prevented further running. An immediate investigation revealed that work was in progress at Bus 23-1 cubicle for DG 2/3. At 2009 hours, the 2A Core Spray Pump was taken out of Pull-To-Lock and returned to normal.

C. CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(iv) which requires the reporting of any condition that caused an inadvertent ESF actuation.

The investigation concluded that there were inadequate precautions prior to transferring energized conductors. The environment was a contributing factor because of the physical location of the auxiliary switch. It is at the bottom and inside of the 4KV cubicle which present a poor work place layout, cramped conditions, uncomfortable temperature, and an expected shock hazard. The risk to work with energized conductors was accepted to avoid entering a 24 hour shutdown of Unit 2 if the 2A Core Spray and 2B LPCI Pumps had been taken out of service.

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.	
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6)		PAGE (3)
Dresden Nuclear Power Station, Unit 2		05000237	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
			94	-- 012 --	02
					3 OF 5

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

This event involved a personnel error by a non-licensed CECO worker from Substation Construction Department. He was not cognitive of the possible effect of a short circuit but was treating each wire as energized to avoid any other contact with terminals or ground.

The modification work was planned to take advantage of a common DG2/3 outage rather than take a dual unit outage. The environmentally qualified auxiliary switch was not available for the previous outage (D2R13). Therefore, this work was scheduled for the U3 outage (D3R13).

Site Engineering knew that a 24 hour shut down LCO of Unit 2 would be in effect if the 2A CS and 2B LPCI pumps were taken out of service. They were of the mindset that Operations would not grant the full boundaries of the out-of-service, so it was not requested. Operations Planning, the Shift Supervisor, and the SCRE have confirmed after the event that Operations probably would not have entered a 24 hour shut down clock, but would have allowed the work with energized wiring with sufficient precautions. It was not practical to wait for the next U2 outage as the modification would be incomplete and the SBO project behind schedule.

The pre-job briefing at the working department focused on the scope as written into the work package and did not cover the possible consequences of a short circuit. Substation Construction personnel are not trained in reading schematics, so the energized wires only represented a shock hazard for personnel safety. Site Engineering did not foresee the possibility of a pump start. The schematic indicated that a shorted contact would not affect equipment unless a LOCA signal was present; short circuits across multiple contacts were not examined. Therefore, it was not discussed with the installer as a potential problem.

The out-of-service request did not list 2A CS or 2B LPCI to be taken out-of-service. The purpose of all work to be performed under the DG2/3 outage was not presented in detail and with drawings to operating, but only provided as a brief description related to the modification. The out-of-service request should have listed that ECCS systems were affected. The requestor is responsible to assist Operations with the full scope of interaction to other plant systems.

This same type of situation recently occurred for the inadvertent start of 3A CW pump by replacement of another auxiliary switch in Bus 33, Cubicle 5 under modification M12-0-91-019F. The out-of-service request was not fully explained there either. In both incidents, Operations could have required the isolation of energized wires and mandated extra care when working with the pump logic had they been notified of the potential to start the pump. The out-of-service procedure, DAP 03-05, is the process for assessing when work is done hot or with equipment in shut down. It places that decision with Operating as long as sufficient information is available to evaluate the work scope. It requires detailed drawings and preparation for the out-of-service request. Those corrective actions had not been implemented prior to the 2A CS event. If better communication occurred per DAP 03-05, then the incident may have been averted.

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.	
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6)		PAGE (3)
Dresden Nuclear Power Station, Unit 2		05000237	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
			94	-- 012 --	02
					4 OF 5

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

D. SAFETY ANALYSIS:

Core Spray would not inject water until the reactor pressure drops below the core spray pumps discharge pressure of 350 psig and the admission valve is opened. A LOCA initiation signal was not present so the water flow was confined to the minimum flow bypass line to the suppression pool.

The switches being replaced per modification M12-0-91-018B contain contacts that provide indication of the 2/3 Diesel Generator output breaker closed/open status to various logic circuits, including Core Spray and Low Pressure Coolant Injection. The Core Spray and LPCI systems were operable and were ready for operation upon the receipt of an ECCS initiation signal with the appropriate Diesel Generator loading sequence in accordance with the FSAR. The Core Spray pump started and lined up as anticipated in response to the false start signal provided by this inadvertent action.

There were no safety consequences because the core spray did not inject into the vessel and only circulated to the minimum flow lines.

E. CORRECTIVE ACTIONS:

Immediate corrective action after this event was the isolation and taping of the loose wire lug. Operations had placed the 2A Core Spray Pump into Pull-To-Lock position, effectively taking it out of service and entering into a 24 hour LCO time clock toward a forced shutdown condition. Site Engineering and Construction and Operations analyzed the event and then proceeded with Substation Construction to complete the wiring inside the Bus 23-1 Cubicle 14. The 2A Core Spray Pump was returned to service in approximately 3 hours.

The action to prevent reoccurrence was to hold tailgate sessions. The Substation Construction Department at Dresden was made aware of the event and the consequences of working on energized circuits.

Other planned corrective actions at that time included a revision to DAP 03-05 to add a checklist which would describe the scope of work in the package with a hold point for Operations in order to improve communications. That approach has since been reassessed with the emphasis placed on the Work Analyst for package preparation instead at the out-of-service program.

DAP 03-05 is undergoing an extensive re-write for the next revision and the checklist is not part of the changes. Instead, the work scope must be completely described with any special considerations by the requestor for the out of service preparer.

The Work Analyst's Guide to Package Preparation has been revised to include a Plant Impact Statement. It has sections for "Work Scope" and "Equipment Impact" which identifies affected indications, alarms, computer points, interlocks with other equipment and is prepared by the Work Analyst. Another section on "Plant Impact" identifies the plant conditions for out of services and work implementation. It is prepared by the Ops Planner. The final approval to proceed is signed by Operations. This approach accomplishes the original intent of the "checklist". The Plant Impact Statement is placed in the work package. It is the work scope communication tool between the working group and

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 (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)		DOCKET NUMBER (2)	LER NUMBER (6)		PAGE (3)
Dresden Nuclear Power Station, Unit 2		05000237	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
			94	-- 012 --	02
5 OF 5					

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

Operations. This was tracked by NTS # 237-180-95-01601 which has been completed.

F. PREVIOUS OCCURRENCES:

LER/Docket Number Title

90-010/0500237 2B Core Spray Pump Automatic Start Due to Management Deficiency.

91-010/0500249 Bus 38 Undervoltage Relay actuation Due to Inadvertent Shorting of Relay Terminals.

G. COMPONENT FAILURE DATA:

No component failures were involved.