



**Commonwealth Edison**  
Dresden Nuclear Power Station  
6500 North Dresden Road  
Morris, Illinois 60450  
Telephone 815/942-2920

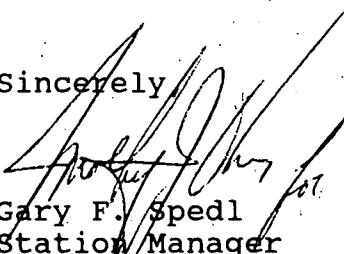
April 6, 1994

GFSLTR 94-0109

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

Licensee Event Report 94-008, Docket 50-249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10CFR50.73(a)(2)(i).

Sincerely,

  
Gary F. Spedl  
Station Manager  
Dresden Station

GFS/VK/AB:cfq

Enclosure

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

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*4/1*

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
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TITLE (4)  
Anticipated Transient Without Scram (ATWS) Trip Time Delay Failure Due to Management 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	DOCKET NUMBER
03	11	94	94	-- 008 --	0	04	08	94	Dresden Unit 3	0500249
									FACILITY NAME N/A	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	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)						
	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)						
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER						
	20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)						
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)							
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)								

LICENSEE CONTACT FOR THIS LER (12)

NAME Vic Kanal, System Engineer	TELEPHONE NUMBER (Include Area Code) Ext. 2349 (815) 942-2920
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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
X	JIC	94	G080	Yes					

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

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

At 1355 hours on March 11, 1994, with Unit 3 in the Refuel Mode, during the performance of Dresden Instrument Surveillance (DIS) 0260-06, "Anticipated Transient Without Scram (ATWS) [JC] Transmitter and Master Trip Unit Calibration and Logic System Functional Test", time delay relay 3-0260-K101C tripped at 32.29 seconds and relay 3-0260-K101D failed to time out. Dresden Technical Specification 3.2.H., "Recirculation Pump Trip Initiation", requires that the time delay be greater than or equal to 8 seconds and less than or equal to 10 seconds. The relay failures were a result of component aging and cycling. Under Work Request D21641, both relays were removed and replaced. The root cause of this event was incomplete corrective actions from a previous event. The original relays were not replaced in a timely manner.



**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

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

initiating a work request (WR D21641) to replace all ATWS system relays and creating a preventative maintenance general surveillance (GSRV) to replace the relays at a frequency less than their life expectancy. The GSRV item was not schedule to begin until all the relays were replaced to establish a new beginning of service-life date. Work request D09827 was written to have the relays replaced during the D3R12 refuel outage. During the D3R12 refuel outage, Dresden Station management elected not to replace the ATWS relays. The schedule of NTS item 249-200-91-06301 was then delayed. Work request D09827 was cancelled and new WR D21641 was written to perform the relay replacement. As a result of this decision, the relays remained in operation and eventually exceeded their life expectancy.

Therefore, the root cause of this event was management deficiency resulting in the failure of station personnel to replace the relays in a timely manner.

**D. SAFETY ANALYSIS:**

The ATWS system monitors plant parameters which would indicate an abnormal transient is in progress and/or the Reactor Protection System (RPS) has failed to provide plant protection. The two parameters that actuate the ATWS system are low-low reactor vessel water level and high reactor vessel pressure.

On a low-low reactor water level (-59 inches) initiation signal, the ATWS system actuates to trip the reactor recirculation pumps following a nine second time delay. The nine second time delay is consistent with the assumption in the Loss of Coolant Accident (LOCA) analysis. The inertia of the motor-generator set will provide short term pumping capability following a recirculation pump motor trip. If the trip occurs at the field breaker of the motor of the motor-generator set, the inertia of the motor-generator is no longer available to prolong the pumping capability. The nine second time delay is used to compensate for this loss of pumping capability, thus satisfying the LOCA analysis for a reactor low-low water level trip. The recirculation pumps [AD] are tripped in order to reduce flow through the core rapidly, thereby providing an initial reduction in core power at the same time that the time delay is energized for the recirculation pumps, the ATWS circuit energizes the Alternate Rod Insertion (ARI) solenoid valves to depressurize the Control Rod Drive (CRD) [AA] scram air header, and Scram Discharge Volume (SDV) air header. The valve initiation circuit is sealed-in for 39 seconds, which is sufficient time for all control rods to insert fully.

When actuated by a high reactor pressure signal (1240 psig), the ATWS system operates to trip the reactor recirculation pumps immediately and to energize the ARI valves. The nine second time delay is not required on a high pressure actuation of the ATWS system. Increasing pressure in the vessel causes a void reduction in the core; this in turn causes reactor power to increase. The increasing power causes more steam to be produced, which increases pressure still further, thereby causing a further power increase. Any time delay would allow this cycle to develop further and increase the danger of core damage.

The ATWS system is designed as a redundant, independent and diverse reactor shutdown system which provides a backup function for the RPS. The ATWS system is divided into two divisions, each division being capable of performing the system's function. Each division of the ATWS system is physically and

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electrically separated from each other. This ensures that a failure, or partial failure, of one ATWS division will not affect the operation of the other. The system is designed so that a single component failure will not inadvertently initiate the system or prevent the ATWS system from accomplishing its function.

The safety significance is minimal. Although the ATWS system would not trip on low water level at 9 seconds, it would have tripped at 32.2 seconds. Additionally, LPCI [BM] loop select logic would have generated an automatic trip of the recirculation pump motor breaker at -59 inches reactor water level. The time delay relay failures would not have prevented a trip of the recirculation pumps on reactor high pressure. In addition, Dresden Emergency Operation Procedure (DEOP) 400-5, "Failure To Scram," directs the operators to manually trip the reactor recirc pumps if the reactor fails to scram from a valid scram signal and if the reactor power is greater than 6 percent.

**E. CORRECTIVE ACTIONS:**

Corrective action included replacing all the ATWS relays under Work Request D21641. The ATWS Trip time delay relays will continue to be checked every quarter and calibrated every refuel outage. Also, to ensure relays do not exceed their life expectancy, the Instrument Maintenance Department will replace the relays every third refuel outage per existing General Surveillance items.

Currently, Dresden Administrative Procedure (DAP) 02-15, "Tracking Station Commitments", does not adequately control the method of changing due dates for internal action items developed from station root cause reports (Type 200).

In order to mitigate this programmatic problem of postponing commitment corrective action items, Dresden station will revise DAP 02-15, to include specific guidance for changing scope and schedule for action items developed from station Root Cause Reports (NTS # 249-180-94-00801).

It should be noted that the Dresden Station guidance will provide personnel accountability for unjustifiable extensions in implementing corrective actions and commitments.

**F. PREVIOUS OCCURRENCES:**

LER/Docket Number Title

DVR/12-3-89-127 Fatigue failure of 101D ATWS level transmitter trip time delay relay due to age cycling.

DVR/12-3-91-63 ATWS trouble alarm failure due to relay failure.

NRC FORM 366A (5-92)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95	
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G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
Agastat	Relay	FTR14B3CC750	

A national nuclear plant reliability data system (NPRDS) data search for failures of Agastat FTR series relays on various systems revealed only one other event. The failures was due to excessive testing and adjustment of a potentiometer.