

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Dresden Nuclear Power Station, Unit 3</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 2 4 9</b>	PAGE (3) <b>1 OF 0 3</b>
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TITLE (4)  
**Standby Gas Treatment System Automatic Actuation Due to a Failed Fuel Pool Floor Radiation Monitor Resulting From a Failed Geiger Mueller Tube**

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 NAMES			DOCKET NUMBER(S)		
1	2	2	8	6	-	0	2	2	Dresden Unit 2			0 5 0 0 0 2 3 7		
									N/A			0 5 0 0 0		

OPERATING MODE (9) <b>N</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)											
POWER LEVEL (10) <b>1 0 0</b>	20.402(b)			20.406(c)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)			73.71(b)		
	20.406(a)(1)(i)			50.38(c)(1)			50.73(a)(2)(v)			73.71(c)		
	20.406(a)(1)(ii)			50.38(c)(2)			50.73(a)(2)(vii)			OTHER (Specify in Abstract below and in Text, NRC Form 365A)		
	20.406(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)					
	20.406(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)					
20.406(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)									
NAME <b>Edward J. Kotrich Technical Staff Engineer (X-523)</b>							TELEPHONE NUMBER <b>8 1 5 9 4 2 - 2 9 2 0</b>		

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	
X	I	L	M	O	N	G	10	8	10	Y	

SUPPLEMENTAL REPORT EXPECTED (14)							EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)							<input checked="" type="checkbox"/> NO				

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

On December 22, 1986 Unit 3 was in the run mode at 100% power and Unit 2 was in the refuel mode at 0% power. One of the two Unit 3 fuel pool floor area radiation monitors (3-1705-16B) spuriously spiked high which caused the standby gas treatment (SBGT) system to automatically start and the Unit 3 Reactor Building ventilation to isolate. Background radiation readings on the refuel floor at the time of the event were 5 to 9 mR/hr. Also, there was no refueling activity in progress at the time of occurrence. This monitor was placed back in service 4.8 hours previous to the upscale failure. This monitor was out of service prior to the 4.8 hour interval due to a downscale failure. In order to return the failed monitors back to service, in both cases, the sensor and converter section was replaced with shop spares and recalibrated per DCP 2700-12. Subsequent to these repairs troubleshooting was performed on both sensor and converter sections. The failed components on the downscale event included a Geiger Mueller tube, resistors R1 and R2 and capacitor C2. The upscale event has been attributed to a failed Geiger Mueller tube.

The safety significance was minimal because the redundant Channel "A" monitor was operable and capable of providing upscale and downscale trips. The last previous occurrence of this type is documented in Reportable Occurrence #86-008 on Docket #050237.

*IFRZ*  
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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
					0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 368A's) (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].

EVENT IDENTIFICATION:

Standby gas treatment system (SBGT) [BH] automatic actuation due to a failed fuel pool radiation monitor [IL] resulting from a failed Geiger-Mueller tube.

A. CONDITIONS PRIOR TO EVENT:

Unit: Three                      Event Date: December 22, 1986                      Event Time: 2306  
Reactor Mode: N                      Mode Name: Run                      Power Level: 100%

This reported was initiated by Deviation Report #12-3-86-105.

Run Mode - At the time of the event, the Unit 3 reactor was operating at 100% power. All engineered safety functions were in service (operating/standby).

B. DESCRIPTION OF EVENT:

On December 22, 1986 at 2306 hours, Unit 3 was in the run mode at 100% power in cycle 10 of unit operation. Earlier in the day at approximately 1400 hours, the sensor and converter section of the fuel pool floor radiation monitor 3-1705-16B had been replaced under Work Request #D60557 because it had been failing downscale causing intermittent trip alarms. This did not cause an automatic initiation of the SBGT system because the trip logic for initiation requires two simultaneous downscale signals or one upscale signal. Technical Specification Section 3.2.D.3 requires that the trip settings for the refueling floor radiation monitors be set at 100 mR/hr or less. In accordance with Dresden Chemical Procedure (DCP) 2700-12 (Reactor Building Ventilation and Refueling Floor Radiation Monitor Calibration) the trip setpoints are 90 + 0, -10 mR/hr upscale and 1.0 mR/hr downscale. At approximately 1820 hours, calibration of the new monitor was completed and the fuel pool floor radiation monitor was declared operable.

At 2308 hours on 12/22/86, the monitor, 3-1705-16B, spuriously spiked high for the first time which caused the Unit 3 Reactor Building ventilation system [VA] to be isolated and the SBGT system to automatically actuate. In accordance with Operating Order #1-86, the Unit 2 Reactor Building ventilation system was given a manual signal to isolate and connect to the SBGT system. The monitor spiked high two more times within the next fifteen minutes then did not give any more spurious alarms until it was replaced. The normal readings from the 3-1701-16A and B monitors were about 5 to 9 mR/hr during this time frame. Also, there was no refueling activity on the refuel floor. At 2331 on 12/22/86, the SBGT system was secured and both Reactor Building ventilation systems were returned to normal. Work Request #60585 was written to investigate and repair the upscale failed monitor. The sensor and converter section of the monitor was replaced and calibrated on the day shift on the following day, 12/23/86. The monitor was declared operable at 1620 hours on 12/23/86. There were no further spurious alarms on 12/23/86 prior to the replacement of the monitor. The failed sensor and converter section of the monitor

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TEXT (If more space is required, use additional NRC Form 388A's) (17)

was sent to the shop for investigation and repair. The replacement sensor and converter section functioned normally after being placed in service.

C. APPARENT CAUSE OF EVENT:

The failed components of the downscale event included a Geiger Mueller (GM) tube, resistors R1 and R2 and capacitor C2. The upscale event has been attributed to a failed GM tube. Exact cause of GM tube failure cannot be determined due to the fact that they are small, pressurized and sealed. GM tube failures could be caused by leaking fill gas, unravelled coating or failed electrodes. The sensor and converter section is identified as General Electric Part #194X927 G16. A search of the NPRDS data base failed to indicate any other failures for this model number out of a total of 90 similar reports by all utilities.

D. SAFETY ANALYSIS OF EVENT:

The safety consequences of this event were minimal because the spurious trip alarms sent by the defective monitor were false (i.e., conservative failure) and the other Unit 3 radiation monitor on the refuel floor was functioning normally. Except for the three spurious spikes, the monitor functioned normally at all times. The radiation levels on the floor were normal (5-9 mR/hr) and no refuel activity was in progress at the time. The engineered safety systems (ventilation and SBGT) functioned normally.

E. CORRECTIVE ACTIONS:

The immediate corrective action was to replace the defective radiation monitor within 24 hours as required by Technical Specification Section 3.2.D.2. The monitor was calibrated per DCP 2700-12. The failed components of both sensor and converter sections were replaced; the sensor and converter sections were recalibrated and returned to the Storeroom as spares per Work Request Nos. 60588 and 60592.

F. PREVIOUS EVENTS:

The last previous occurrence of this type in which SBGT automatically initiated due to a radiation monitor failure is documented in Reportable Occurrence #86-008 on Docket #050237.

G. COMPONENT FAILURE DATA:

Component UTILCOMP 3-1705-16B has been reported as a failure.

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Commonwealth Edison  
Dresden Nuclear Power Station  
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July 22, 1987

EDE LTR #87-130

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

Licensee Event Report #86-022-1, Docket #050249 is being submitted as required by the Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73 (a)(2)(iv). This report has been revised to submit the root cause of failure for the fuel pool area radiation monitors.

E.D. Eenigenburg  
Station Manager  
Dresden Nuclear Power Station

EDE/kjl

Enclosure

cc: J.G. Keppler, Regional Administrator, Region III  
File/NRC  
File/Numerical

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