



**Commonwealth Edison**  
Dresden Nuclear Power Station  
R.R. #1  
Morris, Illinois 60450  
Telephone 815/942-2920

August 13, 1991

EDE LTR #91-503

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

Licensee Event Report #91-020-0, Docket #050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(iv).

E. D. Eenigenburg  
Station Manager  
Dresden Nuclear Power Station

EDE/ade

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III  
File/NRC  
File/Numerical

(ZDVR/288)

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2 Docket Number (2) 0 15 10 10 10 12 13 17 Page (3) 1 of 0 4

Title (4) Reactor Building Ventilation Isolation and Automatic Standby Gas Treatment Initiation Due to Radiation Monitor Power Supply Failure

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)	
07	23	91	91	0210	00	08	13	91	Dresden Unit 3	0151010101214	19	

OPERATING MODE (9) N

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

POWER LEVEL (10) 065	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 20.405(a)(1)(v)	<input checked="" type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.71(b)	<input type="checkbox"/> 73.71(c)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
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LICENSEE CONTACT FOR THIS LER (12)

Name: M. Tommalieh, Technical Staff System Engineer Ext. 2459

TELEPHONE NUMBER: AREA CODE 815942-219210

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	I	L	J	X	G	0	8	0	Y

SUPPLEMENTAL REPORT EXPECTED (14)

Yes (If yes, complete EXPECTED SUBMISSION DATE) X NO

Expected Submission Date (15)

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

On July 23, 1991 at 1435 hours with Units 2 and 3 operating at 65% and 60% respectively, the power supply (2-1705-7A) for the Unit 2 Channel "A" Reactor Building Ventilation (RBV) and Channel "A" Fuel Pool Radiation Monitors failed. This caused these Radiation Monitors to initiate automatic isolation of the Unit 2 and 3 RBV systems and automatically initiated the Standby Gas Treatment (SBGT) system. Underlying causes of the Radiation Monitor signals were electronic in nature (power supply capacitor and Zener diode failures). The RBV systems remained isolated and SBGT was kept operating until 2220 hours when the power supply was replaced. The safety significance of this event is considered minimal because the automatic actuations that occurred were proper upon receipt of the Radiation Monitor signals and there was no affect on secondary containment integrity. A previous event involving automatic SBGT start due to a radiation monitor problem was reported by LER 88-019-0. Power supply problems of this type have not been an adverse trend.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 Mwt rated core thermal power

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX)

EVENT IDENTIFICATION:

Reactor Building Ventilation [VA] Isolation and Automatic Standby Gas Treatment [BH] Initiation Due to Radiation Monitor Power [IL] Supply Failure

A. CONDITIONS PRIOR TO EVENT:

Unit(s): 2(3)                                      Event Date: July 23, 1991                                      Event Time: 1435 Hours

Reactor Mode(s): N(N)                                      Mode Name(s): Run(Run)                                      Power Level(s): 65%(60%)

Reactor Coolant System (RCS) Pressure: 960.6 (1000.7) psig

B. DESCRIPTION OF EVENT:

On July 23, 1991 at 1435 hours with Units 2 and 3 operating at 65% and 60% power respectively, the power supply (2-1705-7A) for the Unit 2 Channel "A" Reactor Building Ventilation (RBV) Area Radiation Monitor (ARM) and the Channel "A" Fuel Pool Area Radiation Monitor failed. This caused these radiation monitors to fail upscale which caused automatic isolation of both Units 2 and 3 RBV and automatic initiation of the Standby Gas Treatment (SBGT) system. Work Request (WR) 02659 was written to repair the power supply. An NRC Red Phone Notification was made at 1511 hours. The power supply was removed and replaced. The RBV systems remained isolated and the SBGT was kept operating until the power supply was replaced. At 2220 hours of the same day the RBV systems were restarted, and SBGT was secured.

C. APPARENT CAUSE OF EVENT:

This report is being submitted in accordance with 10CFR50.73(a)(2)(iv), which requires the reporting of any event or condition that results in unplanned manual or automatic actuation of any Engineered Safety Feature (ESF). The power supply that failed was inspected by the Instrument Maintenance Department (IMD).

The IMD found several failed capacitors (C1, C2, C3, C8, C9) and a failed Zener diode (VR1). Further investigation revealed that two crisscrossing wires on the back of the high voltage board of the power supply had their insulation partially worn; this condition may have caused a spark across the air gap thus producing an electrical short circuit. The IMD performs Dresden Instrument Surveillance (DIS) 1700-7, Reactor Building Ventilation Radiation Monitor Functional Test and DIS 1700-15, Refuel Floor Radiation Monitor Calibration and Functional Test on a quarterly basis. These surveillances were successfully performed on May 21, 1991 and July 5, 1991 respectively. A Total Job Management work history search indicated that one other previous failure was experienced by this power supply on December 13, 1990, however, the cause was found to be a failed transformer.

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D. SAFETY ANALYSIS OF EVENT:

The Fuel Pool and the RBV Radiation Monitors are designed to monitor radiation levels in the Fuel Pool area and the RBV system respectively. Upon abnormal radiation levels, these radiation monitors isolate the RBV systems and initiate SBT system. The SBT system will then maintain a small negative pressure in the Reactor Building, thereby preventing the ground level release of airborne radioactivity, and treats the effluent from the Reactor Building. During this event, the automatic actuations that occurred were proper upon receipt of the Radiation Monitor signals. This event had no affect on secondary containment integrity. Also, the redundant Channel "B" RBV Radiation Monitor senses the same flow as the inoperable "A" RBV Radiation Monitor; high level trip of either Channel or a downscale trip of both Channels of RBV Radiation Monitors would have provided the required automatic function. Also, the "B" Channel of the Fuel Pool Radiation Monitor was operable. The Fuel Pool Radiation Monitors have similar logic to the RBV Radiation Monitors.

E. CORRECTIVE ACTIONS:

The immediate corrective actions were to replace the failed power supply; then the RBV systems were restored to their normal lineup.

The long term enhancement is to evaluate replacement of the existing RBV and the Fuel Pool radiation monitors (including the power supplies) for both Units 2 and 3 with state-of-the-art NUMAC Monitors. A modification request will be presented to the Station Modification Review Committee (SMRC) by the System Engineer to evaluate the aforementioned modification (237-200-91-12401).

F. PREVIOUS OCCURENCES:

A previous event involving automatic SBT actuation due to a radiation monitor problem is the following:

<u>LER Number/Docket Number</u>	<u>Title</u>
88-019/050237	Auto Initiation of the Standby Gas Treatment System Due to Faulty Refuel Floor Radiation Monitor Test Switch
	The cause of this event was attributed to a faulty trip check pushbutton switch. DIS 1700-15, Refuel Floor Radiation Monitor Calibration and Functional Test was performed to verify proper operation of the radiation monitor and the trip check pushbutton switch was repaired.

Non Reportable Event:

<u>DVR Number</u>	<u>Title</u>
12-2-90-148	RBV and Fuel Pool Radiation Monitor Trips Due to a Power Supply Failure
	The power supply was found to have a failed transformer. The power was replaced and the RBV system was restored to normal condition.
	This event was not reportable because the RBV system isolation and the SBT system initiation occurred as part of a planned surveillance activity.

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G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
General Electric	Power Supply	DWG. # 112C2235G1	N/A

An industry wide NPRDS data base search revealed 32 occurrences of GE Model 112C2235G failures. The majority of these failures were due to unknown causes. Other causes that were cited in the NPRDS were components failures due to normal aging.