



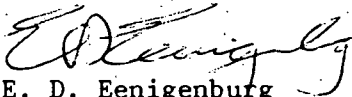
**Commonwealth Edison**  
Dresden Nuclear Power Station  
R.R. #1  
Morris, Illinois 60450  
Telephone 815/942-2920

August 1, 1991

EDE LTR #91-472

U.S. Nuclear Regulatory Commission  
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Licensee Event Report #91-018, 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/dwh

Enclosure

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

(ZDVR/274)

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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 1

Title (4) Reactor Scram on Intermediate Range Monitor Hi-Hi Due to System Noise

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)		
0	7	11	9	1	8	0	8	0	1	9	N/A	
											N/A	

OPERATING MODE (9) N

POWER LEVEL (10) 0 0 0

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

<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 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 checked="" 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: Brian W. Sampson, Technical Staff System Engineer Ext. 2266

TELEPHONE NUMBER: AREA CODE 8 1 5 9 4 2 - 2 19 12 10

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	G	X	X	X	X	X	X	N

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 fifteen single-space typewritten lines) (16)

At 1043 hours on July 11, 1991 an automatic reactor scram occurred due to a spurious Hi-Hi neutron flux signal from Intermediate Range Monitor (IRM) 15. The spike occurred during performance of Dresden Technical Surveillance 500-2, Functional Testing of RPS MG Set and RPS Reserve Power Supply, as the RPS Channel A Bus was transferred from its normal to reserve power supply. Due to the transfer of the RPS Channel A power supply, Channel A was already in a tripped condition. The IRM 15 spike tripped RPS Channel B, causing a full reactor scram. It is believed that the transfer of the RPS A power supply to its reserve power supply, the Reserve Instrument Bus, created an electrical disturbance which resulted in the spike of IRM 15. A work request (01217) has been written to reroute all SRM/IRM signal cable in the Unit 2 drywell inside conduit in the next Unit 2 refueling outage to alleviate the spiking problem. Similar events have been documented in Licensee Event Report (LER) 90-015/050237, Intermediate Range Monitor Full Scram Due to Inductive Noise Input to the IRM/SRM Power Supplies, and LER 90-017/050237, Reactor Scram on Intermediate Range Monitor Hi-Hi Due to Unknown Cause.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		Year	Sequential Number	Revision Number			
Dresden Nuclear Power Station	0   5   0   0   0   2   3   7	9   1	-   0   1   8	-   0   0	0   3	OF	0   4

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

This event occurred during the performance of DTS 500-2, Functional Testing of RPS MG Set and RPS Reserve Power Supply. This procedure involves the transfer of the RPS power supply from normal to reserve by first opening the normal power supply circuit breaker and then manually closing in the reserve feed circuit breaker after a short (5 second) time delay. The resulting momentary loss of power results in a trip of the RPS channel being tested. Restoration of the RPS channel to its normal power supply is performed by reversing the above actions, again resulting in a half scram upon loss of power. The spike of IRM 15 occurred immediately after RPS Channel A was transferred to its reserve power supply. The reserve power supply for the RPS Buses is the Reserve Instrument Bus. It is believed that as the Reserve Instrument Bus was loaded, an electrical disturbance was created which was ultimately sensed by the IRM detectors, causing a spike. It could not be determined if any other IRMs or Source Range Monitors (SRMs) spiked at the same time. The IRM indicators were not being visually monitored at the time of the spike, and none of the IRM recorders, including the recorder for IRM 15, were able to capture the spike. The unit alarm typer output indicated that only IRM 15 spiked above its Hi-Hi setpoint.

Spiking of the SRMs and IRMs on Unit 2 due to plant electrical noise has occurred several times since the last Unit 2 outage (D2R12), as referenced below. An investigation into this spiking problem included a review of plant modifications or changes that may have affected the system, SRM/IRM cable routing, and strip chart recorder data. Also several random noise sources were investigated including power supply fluctuations, radio interference, drywell temporary lighting, and the use of welding equipment. Finally, electronic monitoring of SRM/IRM drawers was performed while attempting to induce a spike through valve manipulations. The inability of the investigation to reproduce large magnitude spikes made isolation of the problem impossible.

The investigation did show, however, that the spiking problem in most cases appears to affect all SRM/IRM detectors simultaneously. The only major system change during the most recent Unit 2 outage involved replacement of all SRM/IRM cables in the Unit 2 drywell with new Whittaker cables, which were routed outside conduit. The exception is IRM 16, which is currently connected to its old signal cable, which runs inside conduit. This IRM has consistently exhibited a lower susceptibility to noise. Based on this data, it appears that the SRMs and IRMs with signal cables routed outside conduit in the drywell are experiencing spiking due to plant electrical noise which is propagated to the drywell and picked up by the signal cable.

D. SAFETY ANALYSIS OF EVENT:

Four IRMs provide input into each of the two RPS channels. A flux indication exceeding the Hi-Hi setpoint on any IRM will cause a trip of its associated RPS channel. A simultaneous trip of both RPS channels will in turn produce a full reactor scram. In this event only one IRM reached its Hi-Hi setpoint of 120/125 of full scale, tripping its associated RPS channel. However, the other RPS channel was already in a tripped condition as a result of testing in progress, resulting in a full reactor scram. The unit was in Shutdown mode with all rods inserted to position 00 at the time of the scram. In addition, no plant activities were in progress at the time of the event that would affect core reactivity. Due to the unit status and the fact that all systems performed as designed, the safety significance of this event is minimal.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Dresden Nuclear Power Station	0   5   0   0   0   2   3   7	9   1	-	0   1   8	-	0   0	0   4	OF	0   4		

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

E. CORRECTIVE ACTIONS:

Based on this event, previous similar events, and the recommendations of a General Electric system expert, it is necessary to reroute the existing SRM/IRM signal cables in the Unit 2 drywell inside conduit. A work request (01217) has been written to perform this work during the upcoming D2R13 Unit 2 refueling outage (NTS 249-200-90-04302N). Unit 3 SRMs/IRMs also use Whittaker signal cables inside the drywell. However, these cables are routed inside conduit. Unit 3 has not experienced SRM/IRM spiking problems similar to those encountered on Unit 2.

F. PREVIOUS OCCURENCES:

LER/Docket Numbers    Title

90-015-0/050237    Intermediate Range Monitor Full Scram Due to Inductive Noise Input to the IRM/SRM Power Supplies.

IMD Personnel were performing Dresden Instrument Surveillance (DIS) 1500-5, Low Pressure Coolant Injection [B0] Containment Cooling Logic Test, when a full reactor scram was received on IRM Hi-Hi flux signals. The IRM spike was attributed to inductive noise input to the SRM/IRM power supplies from actuation of a faulty relay.

90-017-0/050237    Reactor Scram on Intermediate Range Monitor Hi-Hi Due to Unknown Cause.

On two separate occasions a reactor scram was received when IRMs in both RPS channels spuriously spiked above their Hi-Hi setpoint simultaneously. An extensive investigation could not isolate a root cause, and no corrective actions were determined.

G. COMPONENT FAILURE DATA:

<u>Manufacturer</u>	<u>Nomenclature</u>	<u>Model Number</u>	<u>Mfg. Part Number</u>
General Electric	Intermediate Range Monitor System	N/A	N/A

An industry wide NPRDS data base search revealed several SRM/IRM spiking events due to various causes. However, no incidences of spiking caused by cable routing were reported.