



Commonwealth Edison  
Dresden Nuclear Power Station  
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Morris, Illinois 60450  
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SCD

July 24, 1992

CWS LTR #92-422

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

Licensee Event Report #92-22, Docket #050237 is being submitted in accordance with NUREG 1022. The event described in this report involved power supply interruptions to the Unit 2 Control Room annunciators, and is reported voluntarily due to its significance and NRC interest.

*L. F. Schroeder for*

Charles W. Schroeder  
Station Manager  
Dresden Nuclear Power Station

CWS/jmt

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III  
NRC Resident Inspector's Office  
File/NRC  
File/Numerical

IE22

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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   5   0   0   0   2   3   7	Page (3) 1   of   0   4
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Title (4)  
Unplanned Loss of Control Room Annunciators Due to Loose Power Supply Fuse

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	0   1	9   2	9   2	0   2   2	0   0	0   7	2   4	9   2	N/A				

OPERATING MODE (9) POWER LEVEL (10) 0   7   6	N	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(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
		<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
		<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input checked="" type="checkbox"/> Other (Specify						
		<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	in Abstract						
		<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	below and in						
		<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	Text) Voluntary						

LICENSEE CONTACT FOR THIS LER (12)

Name Peter J. Karaba Technical Staff System Engineer Ext. 2353	TELEPHONE NUMBER AREA CODE 8   1   5   9   4   2   -   2   9   2   0
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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	

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> Yes (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> X   NO	Expected Submission Date (15) Month   Day   Year
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On July 1, 1992, with Unit 2 and Unit 3 both operating at 76% power, intermittent audible and visual alarms were received indicating momentary losses of power to the annunciators on Main Control Room (MCR) Panels 902-3, -4, -5, -6, -7, and -8 and 923-1, -5, and -5A. Operations personnel secured all maintenance work in the MCR and the Auxiliary Electric Equipment Room (AEER). At 1150 hours, an Alert condition was declared in accordance with Dresden Emergency Action Levels. Troubleshooting began and the visual function of the annunciators was restored. However, various annunciator horns were inoperable due to blown annunciator circuit cards. The cause of the event was inadvertent movement of a loose copper link during annunciator modification work in the AEER. This link is located in fuse holder F31 which is the negative 125 VDC supply for all Unit 2 annunciator chassis commons. The failed annunciator cards were a result of power surges resulting from the intermittent energization of the circuit. The annunciator cards were replaced and a jumper wire was placed around fuse holder F31. The Alert was terminated at 1905 hours. Corrective action will also include review of fuse link fabrication policy. The safety significance of this event was considered minimal because both Unit 2 and Unit 3 were operating at steady load and visual annunciator operation was promptly restored. In addition, the Reactor Operators still had instrumentation and indication of vital parameters to determine plant status. A previous event involving the Unit 3 annunciators was reported by LER 91-11/050249.



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

The root cause of the copper link not making sufficient contact in fuse holder F31 was attributed to inadequate controls concerning its previous installation. Failure of the annunciator circuit cards is attributed to power surges which resulted from the intermittent energization of the system.

The copper link in question had been installed following a previous event which involved the unplanned loss of the Unit 3 annunciator system due to a blown fuse. This event was reported in LER 92-011/050249. The decision and design processes concerning the installation of this copper link were reviewed. It was concluded that the concept of installing a copper link to prevent future fuse failure pending completion of annunciator modification work was proper. However, the actual implementation of the copper link installation was deficient because the link type (copper tubing) was apparently not compatible with the fuse holder. Field Change Request (FCR) D-6584, which implemented the change from a fuse to a copper link, did not specify the outside diameter of the copper tubing to install. The copper tubing link configuration had a slightly smaller diameter than a standard link type, causing it to be subject to movement as a result of vibration. Due to the "saddle" arrangement of the in-place fuse holder, the fit of the copper link is difficult to check, especially if the circuit is live. In addition, there is no test which can be conducted to determine the gripping force being applied to the link by the fuse clip. At the time of installation, visual observations for looseness and thermography were performed to determine if the fit was adequate. However, these qualitative checks are not a direct, quantitative measure of the acceptance for fit.

In addition to the drawing indicating the location of the link, the work instruction provided was to replace the fuse with a link. This was determined to be adequate instructions because fuse/link installation is considered to be a "craft capability" function which is routinely performed. Further detail in the work package concerning the type of link to be utilized (i.e., a standard fuse link product vs. a fabricated type) could possibly have insured a tighter fit.

D. SAFETY ANALYSIS OF EVENT:

The annunciator system informs the Reactor Operator audibly and visually of abnormal equipment status. Upon the loss of power to the annunciator system, the Alert condition was properly declared in accordance with Condition 3.i of Emergency Plan Implementing Procedure (EPIP) 200-T1, Dresden Emergency Action Levels. Although the annunciators were promptly restored, as a precautionary measure, the Alert was not terminated until troubleshooting was completed and the root cause was determined. The wire jumper which was placed around the fuse holder F31 is acceptable because the positive 125 VDC supply to each branch circuit in the 902-34 is adequately fused. The jumper will not be susceptible to disturbances which caused this event. Prior to this event, both Unit 2 and Unit 3 were operating at steady load. In addition, an extra Reactor Operator was assigned to monitor the 902-5 panel. These Operators still had gauges and recorders of vital plant parameters to determine plant status. Therefore, the safety significance of this event is considered minimal.

E. CORRECTIVE ACTIONS:

The immediate corrective actions were to replace the blown annunciator circuit cards under Work Request (WR) 10250, and to place a jumper around fuse block F31 per Temporary Alteration II-21-92. Additional corrective actions included the placing of a jumper around fuse holder F25 in the Unit 3 903-34 panel, which also contained a copper link, per Temporary Alteration III-22-92. This event was covered as a topic in station tailgate meetings and was also issued as a Nuclear Network item to inform the Industry of the event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

These Temporary Alterations will be made permanent during completion of the annunciator modification project. The Nuclear Engineering Department (NED) is completing their review of a task force report concerning difficulties that have occurred during performance of the annunciator work at the Dresden and Quad Cities sites. This review will also consider potential policy improvements concerning specification of fuse links, and will provide further recommendations to the site by 8/28/92 (237-200-92-12601).

The Maintenance Staff is also reviewing current policy concerning fabrication of fuse links, and will implement appropriate improvements. These improvements may include enhanced training and/or procedural controls, and will be identified by 9/4/92 (237-200-92-12602).

F. PREVIOUS OCCURRENCES:

LER/Document Numbers  
91-022/050249

Title  
Loss of Control Room Annunciators Due to Design Deficiency

While the unit was in a normal refuel outage all power was lost to Main Control Room Panels 903-3, -4, -5, -6, -7, and -8 annunciators when a single fuse blew. The root cause of the event was attributed to design deficiency which had a single fuse supplying the negative 125 VDC to all annunciator chassis commons. The corrective action was to replace the fuse with a copper link on both Units 2 and 3.

89-001/050259

Turbine Trip and Reactor Scram on Stop Valve Closure Due to Slow Transfer of House Loads During Loss of Offsite Power

During this event, power to annunciator panel 902-3 was interrupted due to Fuse F-9 opening. Power was also interrupted for annunciator panel 902-6 due to another fuse opening; no other annunciators were affected. The cause was attributed to 125 VDC system spikes during the event. The appropriate fuses were replaced.

Non Reportable  
event no.12-3-92-55

Loss of Main Control Room Annunciator Power Due to Loose Electrical Connections

While Unit 3 was in a normal refuel outage, power was lost intermittently to Main Control Room Panels 903-3, -4, -5, -6, -7, and -8. The cause of the event was attributed to loose wiring in Annunciator Input Cabinet 903-34. Fuse Block F-15 was replaced and other loose connections were tightened.

G. COMPONENT FAILURE DATA:

As this event was not caused by component failure, this section is not required. This system is not NPRDS reportable.