



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

May 28, 1992

CWS LTR #92-286

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

Licensee Event Report 92-13, Docket 050249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(iv).

L. J. Mermer for 5/29/92

Charles W. Schroeder
Station Manager
Dresden Nuclear Power Station

CWS/cfq

Enclosure

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

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(ZDVR/616)

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 3	Docket Number (2) 0 15 10 10 10 12 14 19	Page (3) 1 of 0 4
Title (4) Pressure Suppression System Torus Vacuum Relief Valve 3-1601-20A Actuation Due to Loss of Control Power		

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 5	0 16	9 12	9 12	0 1 13	0 10	0 5	2 18	9 12	None	

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) 0 0 0	<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 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 Emory Johnson, Technical Staff System Engineer	TELEPHONE NUMBER
Ext. 2603	AREA CODE 8 1 5 9 4 2 -12 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	

SUPPLEMENTAL REPORT EXPECTED (14)

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

Expected Submission Date (15)	Month	Day	Year

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

While in the Refuel mode with reactor water temperature less than 212 deg. Fahrenheit, one phase to a three phase 120/208 volt distribution panel of Motor Control Center (MCC) 38-1 was lost. Loss of this power supply resulted in a Reactor Protection System (RPS) Channel B half scram, half Groups I, II, and III isolations and the auto-opening of Pressure Suppression System Torus Vacuum Relief Valve 3-1601-20A. The phase was lost when the cable between the distribution transformer and the distribution panel opened. The opening of the cable is believed to be caused by long term heating and gradual conductor degradation due to conductor strand damage during initial installation. The Electrical Maintenance Department (EMD) replaced the opened cable and inspected the other two phases, in which no problems were found. This is the first reported occurrence of this type. The safety significance was minimal because primary containment integrity was not affected and the equipment operated as designed due to the loss of control power. In order to identify this type of problem and possibly prevent a similar occurrence, the thermographic inspection program will be expanded to include inspection of safety related MCC distribution panels with the protective panels removed.

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

Upon investigating the cause of the event, EMD discovered that a phase to MCC 38-1 120/208 Volt distribution panel had completely opened. Inspection of the compression terminal at the distribution panel revealed that the conductor strands were secure beneath the terminal screw and that the conductor had separated adjacent to the terminal. It is believed that during initial installation of the cable (#8 AWG), some of the conductor strands were inadvertently broken or cut. This cable consists of 133 strands. While the remaining strands were capable of carrying the load current, heating of these conductor strands was occurring. This is evident by the heat degradation of the first foot of the cable. Over time, more and more strands failed further increasing the amperage and heat load on the remaining strands until the complete failure of the cable.

Failure of the 'C' phase resulted in deenergization of the Internal Power supply to the Analog Trip Panel 2203-73A Engineered Safety Feature (ESF) Division I equipment. This equipment includes differential pressure transmitter (DPT) 3-1622A and level transmitter (LT) 3-263-57B. DPT 3-1622A supplies an input signal to master trip relay (MTR) 3-1641-15A. During the event, power was lost to MTR 3-1641-15A, its associated contact opened, de-energizing the solenoid valve for AOV 3-1601-20A and causing it to open. LT 3-263-57B provides the input signal to Level Indicator (LI) 3-263-100B (medium Range Reactor Water Level) a process computer point (A3845), and MTR 3-263-142B. MTR 3-263-142B, through an associated contact, provides the reactor water level input to Reactor Protection System (RPS) subchannel B1 and Primary Containment Groups I, II, and III isolation circuitry. Therefore, the loss of power resulted in a 'B' medium range reactor water level indicator downscale reading, a half scram and half Groups I, II, and III isolations.

A review of maintenance histories did not reveal any recent work that may have contributed to the event. The thermography program presently does not include thermography of the panels with the protective plate removed. A thermographic inspection of this panel, with the access cover removed, could potentially have detected this anomaly.

D. SAFETY ANALYSIS OF EVENT:

This event is being reported because AOV 3-1601-20A unexpectedly changed state. The 3-1601-20A valve is part of the Pressure Suppression System. The primary purpose of the 3-1601-20A is to provide isolation for the 3-1601-31A vacuum breaker check valve which are used to prevent exceeding the design external pressure of the torus. The valve relieves pressure from the reactor building [NG] to the torus if there is a pressure differential greater than 0.5 psid. AOV 3-1601-20A is normally closed in the energized state. Upon loss of either air or electric power, the valve opens. In addition, there is a check valve 3-1601-31A in line with the 3-1601-20A valve prevents backflow from the torus and drywell out to the reactor building. During this event, the unit was depressurized and the mode switch was positioned to refuel, a mode in which primary containment integrity is not required. Since the deenergization of this single phase did not cause a breach of primary containment integrity and resulted in conservative half scram and half Groups I, II, and III isolations, the significance of this event is considered minimal.

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

E. CORRECTIVE ACTIONS:

The Shift Supervisor and Electrical Maintenance Supervisor investigated the cause of the event. WR 08979 was issued to restore the lost phase. EMD replaced the failed phase and inspected the other two phases, in which no problems were found.

In order to help prevent recurrence of this type of event the Technical Staff will revise Dresden Technical Procedure (DTP) 27, Infrared Thermography Program, to incorporate removing the bolted protective plate on safety related MCC distribution panels and complete an enhanced thermography inspection of safety related MCC distribution panels by 12-31-92 (249-200-92-06801).

F. PREVIOUS OCCURENCES:

LER/Docket Numbers Title

A review of station records did not reveal any previous events similar to this one have occurred.

G. COMPONENT FAILURE DATA:

Cabling is not considered a Nuclear Plant Reliability Database System (NPRDS) reportable component. Moreover, an industry wide NPRDS data base search revealed no instances of ESF actuations attributed to cable failure.