NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES 8/31/85

LICENSEE EVENT REPORT (LER)

UPDATED REPORT. ORIGINAL REPORT DATE 03-15-85

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 3	0 5 0 0 0 2 4 9	1 OF 0 3

TITLE (4)
Loss of Undervoltage Protection on Bus 34-1

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 2	1 6	8 5	8 5	—	0 0 5	—	0 1	0 8	1 4	8 5	N/A	0 5 0 0 0
											N/A	0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 9 9	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Brian McCabe (X-550)	AREA CODE 8 1 5 — 9 4 2 - 2 9 2 0

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	
A				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)

On February 16 to 17, 1985 with Unit 2 in a refuel outage and Unit 3 at 99 percent power, plans were made to run DOS 6600-5 and DOS 6600-6, ECCS Undervoltage Test for Unit 2 and Unit 2/3 Diesel Generator, respectively, per the direction of the Unit 2 Operating Engineer. The 2/3 diesel generator was planned to be brought back into service at 0730 on February 16 from a planned inspection per direction of the Unit 3 Operating Engineer. The A-Man, per DOS 6600-5, proceeded to hang caution cards on the knife switches. The A-Man inadvertently hung the cards on the Unit 3 diesel generator knife switch locations instead of Unit 2 and proceeded to open the corresponding knife switches. DOS 6600-5 states only to hang the caution cards with instructions to change switch positions. Switch positions should not be changed until the undervoltage test, DOS 6600-5, in in progress. Upon opening the switches, the alarm in the control room "4KV Bus 34-1 Voltage Degraded" annunciated. The foreman in charge of the test prudently responded to the alarm and closed the knife switches within 4½ minutes of first receiving the alarm which restored Unit 3 diesel generator operability.

Because of the immediate action taken by the Shift Foreman, the unit operated well within Technical Specification 3.0.A. Safety significance was minimal because the probability of a design basis accident (loss of off-site power and a guillotine break of the recirculation suction pipe) is very low for such a short period of time. This is the first occurrence of an event of this type.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Dresden Nuclear Power Station	0 5 0 0 0 2 4 9	8 5	— 0 0 5	— 0 1	0 2 OF 0 3

TEXT (If more space is required, use additional NRC Form 366A's) (17)

On February 16 to 17, 1985, with Unit 2 in a refuel outage and Unit 3 at 99 percent power, plans were made to run DOS 6600-5 and DOS 6600-6, "ECCS Undervoltage Test for Unit 2 and Unit 2/3 Diesel Generator", respectively, per the direction of the Unit 2 Operating Engineer. The 2/3 diesel generator was planned to be brought back in service at 0730 on February 16 from a planned inspection per direction of the Unit 3 Operating Engineer. A caution card checklist was written by a Foreman which included the undervoltage knife switches for the Unit 2 diesel generator; however, the nomenclature used was incomplete. Upon writing the caution cards, an NSO questioned a second foreman as to the position of the undervoltage knife switches. This foreman informed the NSO that the position of the knife switches was to be open. The NSO then wrote an extra instruction on the caution card to "open" the switches. DOS 6600-5 states only to hang the caution cards without instructions to change switch positions.

On the day of the test, a Shift Engineer, with a Shift Control Room Engineer present, gave a general comment to the third foreman (assigned to the undervoltage test) that the 2/3 diesel generator was still out of service. The foreman did not fully comprehend these instructions. When the third foreman gave the A-Man the caution cards to be hung, he only cautioned the A-Man concerning operating BOP and ECCS equipment. The A-Man, confused as to the location of the undervoltage knife switches, questioned the third foreman, so this foreman gave the A-Man a copy of DOS 6600-5. The A-Man inadvertently used the wrong page of the procedure and copied Unit 3 diesel generator knife switch locations on the caution cards instead of Unit 2. The A-Man, along with the Shift Overview Superintendent (SOS), proceeded to hang the caution cards on the Unit 3 diesel generator undervoltage knife switches. While hanging these cards, the A-Man opened the switches as he was instructed to do on the card. Upon opening switches A and D of switch group 34-IUV, the alarm on 903-8, D-4, "4KV Bus 34-1 Voltage Degraded" annunciated. The procedure for this alarm stated that the Unit 3 diesel generator would start and Bus 34-1 would load shed in five minutes if voltage was not restored. The third foreman in charge of the test ran to the 2nd floor of the reactor building and found the A-Man and SOS. They closed the knife switches within 4½ minutes of first receiving the alarm to preclude any chance of starting the Unit 3 diesel generator.

The caution cards and undervoltage knife switches that were inadvertently opened disabled the complex undervoltage logic of the Unit 3 diesel generator in this manner:

The diesel generator would have started on undervoltage from Bus 34-1 only and the load shedding process for that bus would have proceeded as designed. However, the Unit 3 diesel generator would have closed on to an unloaded bus since the logic was defeated that would allow the ECCS load trips to reset. Correspondingly, the ECCS loads could not be manually closed into the bus since there was a trip signal present at each breaker until the knife switches were placed back to normal.

Also, the logic for the five minute timer that initiated the annunciator alarm was defeated by the opening of switch E of switch group 34-IUV. This would have prevented the Unit 3 diesel generator from starting and load shedding. At all times the diesel generator still would have started on low low reactor water level and a

high drywell pressure signal.

At the time of the event Unit 3 was at approximately 800 MWe and Unit 2 was in refuel with CRD work in progress. Also, as stated earlier, the Unit 2/3 diesel generator was still out of service from a planned inspection. Therefore, the opening of knife switches on either Unit 2 or Unit 3 would still have degraded a required diesel generator creating a limiting condition of operation. Technical Specificaiton 3.0.A. states that during this type of event, "the unit shall be placed in at least hot shutdown within 12 hours and in cold shutdown within the following 24 hours unless corrective measures are completed that satisfy the Limiting Conditions for Operation". Due to prudent Operator action, the Unit 3 diesel generator was only degraded for approximately 4½ minutes.

Safety significance was minimal because the probability of a design basis accident (loss of off-site power and a guillotine break of the recirculation suction pipe) is very low for such a short period of time. Also, because of the prudent Operator action, the unit operated well within Technical Specification 3.0.A. This is the first occurrence of an event of this type.

An immediate review of this event has been held with all Operating personnel at Dresden Station. To prevent the recurrence of this type of event before performing the ECCS undervoltage test for the diesel generators, DOS 6600-5 and DOS 6600-6 will be separated into seperate procedures for Unit 2 and Unit 3. A sign-off will be inserted in DOS 6600-5 and DOS 6600-6 to require that the test cannot be performed until all three diesel generators are operable. Also, pre-printed caution card checklists will be included in the ECCS undervoltage test procedure to ensure that an accurate description of the undervoltage knife switches is included. During the next refueling outage, manpower will be scheduled such that at most, only two specific personnel will be in charge of the test to ensure better continuity and communication. An Operating Order was written to require that all personnel involved with a test or complex plant evolution discuss the activity in detail "face to face" before proceeding with the activity. Finally, a Pro Investigation was initiated and the actions of the personnel involved have been reviewed directly by the Station Superintendent.

The Pro Investigation found that the corrective actions taken were sufficient to prevent the recurrence of an event of this type. Therefore, Dresden Station believes that no further corrective actions are deemed necessary.

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August 14, 1985

DJS Ltr #85-817

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

Licensee Event Report #85-005-1, Docket #050249 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73 (a)(2)(i)(B) and 50.73 (a)(2)(v). This supplement provides an update of the corrective actions taken in response to this event.

D.J. Scott
Station Superintendent
Dresden Nuclear Power Station

DJS/kjl

Enclosure

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

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