

SEP 04 1984 305

FACILITY NAME (1) La Crosse Boiling Water Reactor DOCKET NUMBER (2) 050004091 PAGE (3) 1 OF 04

TITLE (4) Loss of Offsite 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		
07	16	84	84	011	00	08	08	84			
									DOCKET NUMBER(S) 050000		

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

OPERATING MODE (9) 3	20.402(b)	20.406(c)	<input checked="" type="checkbox"/>	80.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 01010	20.406(a)(1)(ii)	80.36(a)(1)	<input type="checkbox"/>	80.73(a)(2)(v)	73.71(c)
	20.406(a)(1)(iii)	80.36(a)(2)	<input type="checkbox"/>	80.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.406(a)(1)(iii)	<input checked="" type="checkbox"/>	80.73(a)(2)(ii)	80.73(a)(2)(viii)(A)	
	20.406(a)(1)(iv)	<input type="checkbox"/>	80.73(a)(2)(ii)	80.73(a)(2)(viii)(B)	
	20.406(a)(1)(v)	<input checked="" type="checkbox"/>	80.73(a)(2)(iii)	80.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12) NAME: Lynne S. Goodman, LACBWR Operations Engineer TELEPHONE NUMBER: 608 681 9123 31

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
C	F	K	X P T	W 1 2 0	N				
X	E	D	B K R	A 1 8 0	N				

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)

During a storm, the potential transformer in the LACBWR switchyard shorted out due to the accumulation of wet, dead mayflies on it. A loss of offsite power resulted. The reactor was in the hot shutdown condition at the time, with primary coolant at 395° F. Both emergency diesel generators (EDG) started, but the 1B EDG's output breaker did not close. Offsite power was regained in 20 minutes. The Technical Specification testing required when an EDG is inoperable were performed approximately 6.5 hours after the loss of offsite power, rather than 4 hours. The 1A EDG and its breaker lineup had demonstrated their operability during the event. Priority was placed on achieving a stable, knowledgable plant condition rather than performing the official surveillance tests.

Extensive troubleshooting was performed on the 1B EDG output breaker and its closing circuit. After the breaker toggle rollnut was lubricated, the breaker tested satisfactorily. The potential transformer was replaced.

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10-25-84 TAO

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

At 1750, the potential transformer (XPT) in the LACBWR switchyard shorted out, causing protective devices (87) to operate, opening breakers (BKR) resulting in a loss of offsite power. The reactor (AC)(RCT) was in the hot shutdown condition at the time, with primary temperature at 395° F, during a plant cooldown. Both emergency diesel generators (EDG)(DG) started, but the 1B EDG output breaker, 452 EGB, did not close, leaving the 1B Essential Bus (EB)(BU) without power. The breaker could not be closed using the control switch (HC) in the control room. Equipment which tripped due to the loss of offsite power included both Forced Circulation Pumps (FCP)(AD) (P), 1B Seal Inject (SI) Pump, 1A Condensate Pump (SD), both Low Pressure Service Water Pumps (KG), 1A Circulating Water Pump (KE), 1A Shield Cooling Pump, 1A Component Cooling Water Pump (CC), 1A Fuel Element Storage Well Pump (DA), and the PASS vacuum pump (IL), which maintains isokinetic flow through the stack monitors (MON).

At 1810, offsite power was regained, but the 1B Essential Bus could not be energized. Some equipment was restarted. A successful attempt was made to close the 1B EDG output breaker locally, which energized the 1B Essential Bus. The normal alignment was then tried, with 452-52B, the normal feed breaker closed, and 452 EGB open. This also worked. The 1B EDG was then returned to "auto". Breaker 452-52B tripped open, leaving the bus de-energized. Breaker 452 ECB did not close. Only by placing the 1B EDC control switch to "OFF", was Breaker 452-52B able to be closed, re-energizing the bus. This action was completed at about 1915.

At 1920, the operating crew attempted to start 1B SI Pump, but could not. It was postulated that "load shedding" features prevented the 1B SI Pump from starting. The 1A SI Pump, which was tagged out, was checked to see if maintenance was in progress. Since the pump appeared intact, the tags were cleared at 2000 and the 1A SI pump started. The FCP's were then started. The PASS vacuum pump would not restart after restoration of power. The standby pump was placed in service.

At approximately 1815, the Shift Supervisor and STA determined that an unusual event had existed. Notifications were hampered by the PABX telephone (TEL) system (FI) being out of service. Notifications were made using NAWAS, the red phone, the separate microwave tie trunks, and sheriff's radio.

Troubleshooting was conducted on the 1B EDG output breaker. A blown fuse (FU) was found in the control power circuit for 452 EGB. The breaker's spring release coil (CL), which allows the breaker to close, was found burnt out, which could have caused the fuse to blow. The coil and fuse were replaced. The rework was tested at 0045 with unsatisfactory results. Further troubleshooting led to the discovery that 2 of 4 primary fuses for the undervoltage potential transformer on 1B Essential Bus were blown. The trip circuit for 452-52B comes through relays which are in the circuit when the diesel is in "Auto".

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

At approximately 0350, Alarm (ANN) F1-5, "Static Inverter Trouble" annunciated due to decreased input voltage. It was determined that the input breaker to the Diesel Building Battery Charger (BYC) was open and probably had been since the power transient. An overvoltage trip was probably actuated during the electrical transient before the protective devices operated. The breaker was closed. Alarm F1-6, "Diesel Building Battery Charger" had been in an alarm status.

Further troubleshooting and testing was conducted on the 1B Essential Bus feed breakers and circuitry. The 1B EDG output breaker was one of four 480V breakers which had not yet experienced preventive maintenance (PM) since the PM program on 480V breakers had been instituted in 1982-3. Priority had been placed on the older breakers. The 1B EDG output breaker was an Allis-Chalmers LA 1600A breaker manufactured in August, 1975. The breaker was operating sluggishly on the bench and some hardened grease was apparent. Following the PM on the breaker, the post-maintenance test was again unsuccessful. The toggle rollnut, which knocks the latch off center during the closing cycle, was lubricated. 9

At 1801 on July 17, a successful test of the breaker was performed, which checked the diesel starting and assuming the 1B Essential Bus load on an undervoltage condition on the bus. Additional successful tests of the system were conducted on July 18, It was determined that during the loss of power, the 1B EDG output breaker received a closing signal, but did not close. The spring release coil burnt out due to the sustained closure signal, which in turn caused the control power circuit fuse to blow. The two undervoltage fuses on the 1B Essential Bus blew during the electrical transient. These fuses did not affect the closing ability of the 1B EDG output breaker, but did simulate the existence of an undervoltage condition on the bus. 18

It was determined that a bus undervoltage auxiliary relay (27) prevents 1B SI Pump from starting if an undervoltage condition exists or existed on the 1B essential bus until after the 1B EDG output breaker closes, which clears the signal locked in by the auxiliary relay. The blown undervoltage fuses continued to simulate an undervoltage condition on the bus, after power was restored. Therefore, the 1B SI Pump breaker could not be closed until after the fuses were replaced and the 1B EDG output breaker was successfully closed. 19 15

The PASS vacuum pump was restarted about 1000 on July 17. The overload trip had to be reset before the pump would start. The overload condition is believed to have occurred during the electrical power transient. The standby pump was returned to standby after the main pump was started.

On July 18, offsite power was disconnected during a planned, proceduralized evolution in order to replace the potential transformer in the LACBWR switchyard. The other LACBWR switchyard transformers were also cleared of mayflies while de-energized.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		8 4	0 1 1	0	0 0 4	OF	0 4

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

A similar incident had occurred July 5, 1975. The potential transformer was a Westinghouse Line-to-Line 69 kV Potential Transformer, Type APT-350. The mayflies had accumulated mainly from a hatch the previous night. The storm wet the mayflies, which then shorted out the transformer. Mayflies are attracted to the LACBWR site by the bright security lighting.

1975  
02/1984  
A Generator Plant 125V DC (EI) ground alarm had annunciated among others, during the loss of offsite power. It had not cleared when power was restored. The ground was traced to the closing circuit of Breaker 452 M1B, the 1B 480V Bus (EC) Main Feed Breaker. While offsite power was disconnected on July 18, this breaker and its circuitry were examined, with no problems identified. The ground did not return when the circuit was re-energized.

The remaining 480V breakers which had not yet been examined during the 480V breaker preventive maintenance program were maintained. The breakers were tested after return to service.

1984  
The 1A EDG monthly surveillance test and the breaker alignment check were performed at approximately 0025 (diesel start) and 0015, respectively on July 17. This was somewhat beyond the 4 hours required by T.S. 4.2.3.1.1.a. The technical specification requires in part, that when an EDG is inoperable during Operating Conditions 1,2 or 3, that a timed start be performed on the other diesel and an electrical alignment check be performed within 4 hours and every 12 hours thereafter. The automatic start and load supplying that the 1A EDG performed upon the loss of offsite power did demonstrate that it could perform its function and that the electrical lineup was appropriate. Afterwards, priority was placed on achieving a stable, knowledgeable plant condition. The surveillance test results were acceptable.

Whether the 1B EDG output breaker not closing should be considered a failure of the 1B EDG was evaluated per Technical Specification Table 5.2.10.1.2-1. During the monthly surveillance test, the diesel generator is started and connected to a test load. The EDG output breaker is not tested and cannot be. The 1B EDG output breaker can only be closed if the 1B Essential Bus Main Feed Breaker, 452-52B, is open. Opening Breaker 452-52B during plant operation would momentarily disrupt power to the 1B Essential Bus and cause a reactor scram. Therefore, the 1B EDG is connected to a test load, not the essential bus during the monthly surveillance test, which differs from most other nuclear plants. Due to these unique circumstances, the 1B EDG output breaker is not part of the diesel generator unit. The breaker's failure is not a failure of the diesel generator. If this breaker failure had been considered an EDG failure and the test frequency increased (1B EDG did not start and load within the required time during 1 of the last 100 valid tests), the test performed at the increased frequency would not be checking the operation of the output breaker. This circumstance supports the position that at LACBWR, a failure of a diesel output breaker is not a failure of the diesel generator unit.

August 8, 1984

In reply, please  
refer to LAC-10114

DOCKET NO. 50-409

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

SUBJECT: DAIRYLAND POWER COOPERATIVE  
LA CROSSE BOILING WATER REACTOR (LACBWR)  
PROVISIONAL OPERATING LICENSE NO. DPR-45  
LICENSEE EVENT REPORT NO. 84-11

Reference: 10 CFR 50.73

Gentlemen:

In accordance with 10 CFR 50.73, attached is Licensee Event Report  
No. 84-11.

If there are any questions, please contact us.

Sincerely,

DAIRYLAND POWER COOPERATIVE

  
for Frank Linder, General Manager

FL:LSG:sks

Attachment

cc: J. G. Keppler, NRC Region III  
NRC Resident Inspector  
Richard Dudley, LACBWR Project Manager  
D. Sherman, ANI Library  
INPO

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