LICENSEE EVENT REPORT (LER) Form Rev 2.0

Facility Name (1)	Docket Number (2)	Page (3)
LaSalle County Station Unit 1	0 5 0 0 0 3 7 3	1 of 0 5

Title (4)

Failure of 1B Diesel Generator Output Breaker to Close Onto Bus 143 Within 13 Seconds Due to Procedural Inadequacy

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)
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OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)			
POWER LEVEL (10) 0 9 2		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X Other (Specify in Abstract below and in Text) Special
		20.405(a)(1)(iii)	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 AREA CODE
Paul S. Sampson, Technical Staff Engineer, extension 704	8 1 5 3 5 7 - 6 7 6 1

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
D	E K			N					
X	E K	B K R	G 0 8 0	Y					

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 approximately 1250 hours on August 29, 1988 with Unit 1 in Operational Condition 1 (Run) at 92% power while performing Special Test LST-88-112, "1B Diesel Generator (DG) Output Breaker Closure Within 13 Seconds Verification," the 1B DG Output Breaker ACB 1433 failed to close onto a dead bus within the 13 second Technical Specification limit.

The cause of the 1B DG output breaker failing to close onto bus 143 within the Technical Specification limit of 13 seconds was the failure of the DG output breaker to close on the first attempt. The failed breaker has been inspected by the manufacturer (General Electric). This inspection indicated that the breaker failed to close on the first attempt due to worn parts in the operating mechanism. The worn parts were not detected in a breaker overhaul due to procedural inadequacies.

The 1B DG output breaker was able to close onto its dead bus. It took 1.22 seconds longer than the Technical Specification limit of 13 seconds.

The 1B DG output breaker was replaced with a new spare breaker and tested satisfactorily. The LaSalle Electrical Maintenance procedure used to inspect and repair these breakers has been sent to General Electric for review of its maintenance practices. The remaining breakers will be inspected per General Electric recommendations.

This was a valid DG test failure per Regulatory Guide 1.108 and Technical Specification 4.8.1.1. and is being submitted as a Special Report per Technical Specification 6.6.C.

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PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor

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

A. CONDITION PRIOR TO EVENT

Unit(s): 1 Event Date: 8/29/88 Event Time: 1250 Hours

Reactor Mode(s): 1 Mode(s) Name: Run Power Level(s): 92%

B. DESCRIPTION OF EVENT

At approximately 1250 hours on August 29, 1988 with Unit 1 in Operational Condition 1 (Run) at 92% power, while performing LaSalle Special Test, LST-88-112, "1B Diesel Generator (DG) [EK] Output Breaker Closure Within 13 Seconds Verification," the 1B DG Output Breaker ACB 1433 failed to close onto a dead bus within the 13 second Technical Specification limit. LST-88-112 was being performed due to an event that occurred on August 22, 1988 while performing LaSalle Operating Surveillance, LOS-DG-M3, "1B DG Operability Test." LOS-DG-M3 was being performed as scheduled to meet the Technical Specification required test frequency of once per 7 days. During the first attempt to synchronize the DG to the grid, the DG output breaker did not close. Upon the second attempt the breaker closed and the surveillance was completed without further problems. The Nuclear Station Operator (NSO) who was performing the surveillance at the time believed that he either tried to close the output breaker before the synchroscope reached the 12:00 o'clock position, or the synchronizing circuitry was faulty. Neither of these problems would prevent the diesel from operating during a loss of offsite power situation. This problem was known to have occurred in the past. The NSO notified his supervision of the anomaly and the problem was discussed with the Technical Staff. During the last refueling outage the diesel response time testing indicated no problems with the logic or the breaker. In addition, problems have occurred with synchroscope calibrations and synchrocheck relays in the past. Therefore, the conclusion at the time was to perform a special test at the next scheduled diesel test run to confirm the cause of the problem.

LST-88-112 was performed to do the following:

1) Monitor the breaker to try and determine the cause of the problem, and

2) Verify that the 1B DG Output Breaker would close onto bus 143 in less than or equal to 13 seconds per Technical Specification 4.8.1.1.2.d.4 after deenergizing the bus.

B. DESCRIPTION OF EVENT (Continued)

LST-88-112 deenergized the Division III bus 143 by opening the SAT Feed Breaker ACB 1432 to bus 143 and timed DG output breaker closure from the time the bus was deenergized. The 1B DG output breaker took 14.22 seconds to close after deenergizing the bus. This exceeded the 13 second Technical Specification limit and based on the last Emergency Core Cooling System (ECCS) Response Time Test data from May 18, 1988, the total ECCS Response Time Technical Specification limit would have been exceeded by 0.45 seconds. This calculation is conservative due to the testing methodology and the actual response time for vessel injection is believed to be less than 27 seconds. This was a valid test failure per Regulatory Guide 1.108, due to the DG Output Breaker failing to close onto the bus within 13 seconds.

At the time of the failure the 1B DG was declared inoperable at 1250 hours on August 29, 1988 and the High Pressure Core Spray (HPCS) [BG] system was also declared inoperable but remained in service. It was then decided to swap the 1B DG output breaker with the HPCS pump breaker, since they are like for like breakers, and repeat LST-88-112. This was done to verify that the problem was with the original DG output breaker. With the HPCS pump breaker temporarily installed in the 1B DG Output Breaker compartment and re-performing LST-88-112 the breaker closed on the first attempt and the closing time for the output breaker from the loss of bus 143 was 11.87 seconds. 11.87 seconds is within the 13 second Technical Specification limit for a loss of offsite power. This also makes the Total ECCS Response Time acceptable based on the last Response Time Test data.

The 1B DG was declared operable at 1745 hours on August 29, 1988, but the HPCS system remained inoperable but still in service. After the 1B DG was declared operable, the station decided to install a new breaker in the 1B DG output breaker compartment and re-install the original HPCS pump breaker in the HPCS pump breaker compartment. Once this breaker arrangement is completed, LST-88-112 and LOS-DG-M3 were re-performed to verify operability of the diesel generator, its output breaker and its response time. The test results of LST-88-112 were exactly the same as with the HPCS pump breaker installed in the DG breaker compartment. The 1B DG output breaker took 11.87 seconds to close onto the dead bus, thus the 13 second limit and the total response time limit were not exceeded based on the last ECCS Response Time Test data. The new breaker also closed on the first attempt as it did with the HPCS pump breaker. LOS-DG-M3 was also performed satisfactorily. At approximately 2230 hours on August 30, 1988, the 1B DG was declared operable. The HPCS system was declared operable at approximately 1620 hours on August 31, 1988 upon the completion of LaSalle Operating Surveillance, LOS-HP-Q1, "HPCS System Inservice Test," and the onsite review of LST-88-112 with regards to meeting the ECCS response time requirements for ESF Division III.

C. APPARENT CAUSE OF EVENT

The cause of the 1B DG output breaker failing to close onto bus 143 within the Technical Specification limit of 13 seconds was due to procedural inadequacies. The failed breaker has been inspected by the manufacturer (General Electric) with preliminary inspection results indicating that the breaker failed to close in allowed time due to worn parts in the operating mechanism. The worn parts were not detected in the previous overhaul performed in accordance with LaSalle Electrical Surveillance, LES-GM-106, "Inspection and Maintenance of G.E. Magna Blast Circuit Breakers," due to procedural inadequacies. Grease which was found to have hardened on the breaker parts as well as an excessive amount of dirt in the operating assembly may have contributed to the failure. The cause of the hardened grease and excessive dirt being present was due to inadequate cleaning of the breaker as required by LES-GM-106.

These problems are believed to be limited to LES-GM-106.

D. SAFETY ANALYSIS OF EVENT

The 1B DG output breaker was able to close onto its dead bus. It took 1.22 seconds longer than the Technical Specification limit of 13 seconds, however the Total ECCS Response Time Technical Specification limit of 27 seconds was only exceeded by 0.45 seconds. Due to the conservative testing method used, the station feels that the 27 second limit would not have been exceeded in an actual accident condition. This event could have been significant if the breaker would have failed to close altogether. During the period from 1250 hours on August 29, 1988 until 1620 hours on August 31, 1988 all ECCS systems, offsite power sources, and all of the other diesels were operable. The actions required by Technical Specifications 3.8.1.1. and 3.5.1 were all followed during this event. The 1B DG was inoperable for approximately 8.5 hours. The HPCS system was inoperable for approximately 49.8 hours. The HPCS system was available for most of the period it was declared inoperable.

This is the fourth diesel generator failure within the last 100 valid tests for Unit 1. Per the Technical Specifications the 0, 1A and 1B diesels were tested every 3 days. The Unit 1 diesels remained on a once every 3 day test frequency until 8 consecutive valid tests were performed. As of September 21, 1988 the Unit 1 diesels are on a once every 7 day test frequency with three (3) remaining starts to return to a once every 14 day test frequency.

This report fulfills the requirements of Nuclear Regulatory Guide 1.108 and Technical Specifications 4.8.1.1.3. and 6.6.C.

E. CORRECTIVE ACTIONS

The 1B DG output breaker was replaced with a new spare breaker. The DG Response Time and ECCS Response Time for HPCS and the diesel was verified to be within the Technical Specification limits per LST-88-112. LES-GM-106 has been sent to General Electric for review of maintenance practices. Revisions will be made based on the results of the review. The revisions will be tracked by Action Item Record (AIR) 373-200-88-07001. All "A" Electricians who perform LES-GM-106 on G.E. Magna Blast Breakers will be tailgated on breaker operation, inspection and cleaning. In addition, the need for adequate cleaning of breakers as specified in inspection procedures will be emphasized. Action Item Record 373-200-88-07002 will track completion of this action. The remaining three (3) 4KV breakers on bus 143 will be inspected by General Electric or in accordance with the comments General Electric provides on LES-GM-106. The inspection of these breakers will be tracked by Action Item Record (AIR) 373-200-88-07003. The 4KV breakers on Unit 2 bus 243 will be inspected per station surveillances as planned during the next Unit 2 refuel outage scheduled to start in October, 1988.

F. PREVIOUS EVENTS

LER Number	Title
374/84-005-01	HPCS Pump Breaker
374/84-018-01	Unit 2 HPCS Pump Breaker Malfunction

G. COMPONENT FAILURE DATA

Manufacturer	Nomenclature	Model Number	MFG Part Number
General Electric	4 KV Magna Blast Circuit Breaker	AM-4.16-350-2H	

Commonwealth Edison
LaSalle County Nuclear Station
Rural Route #1, Box 220
Marseilles, Illinois 61341
Telephone 815/357-6761

September 28, 1988

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Dear Sir:

Licensee Event Report #88-019-00, Docket #050-373 is being submitted to your office as a Special Report, in accordance with Regulatory Guide 1.108 and LaSalle Technical Specifications 4.8.1.1.3 and 6.6.C. due to a valid Diesel Generator Test Failure,

W R O Hmtt

G. J. Diederich
For Station Manager
LaSalle County Station

GJD/PSS/kg

Enclosure

xc: Nuclear Licensing Administrator
NRC Resident Inspector
NRC Region III Administrator
INPO - Records Center

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