LICENSEE EVENT REPORT (LER)

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) Non-valid Test Failures of "0" Diesel Generator due to Synchroscope failure during testing

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)
										LaSalle Station Unit 2	0 5 0 0 0 3 7 4
0 1	1 5	8 7	8 7	--- 0 0 2		--- 0 2	0 8	3 0	8 8		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)					
	5	___ 20.402(b)	___ 20.405(c)	___ 50.73(a)(2)(iv)	___ 73.71(b)		
POWER LEVEL (10)	0 0 0	___ 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
Harold T. Vinyard, Technical Staff Engineer, extension 499	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	
X	E K	S Y N	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)

On January 15, 1987, at approximately 1045 hours, LaSalle Operating Surveillance LOS-DG-M1 ("0" Diesel Generator Operability Test) was being performed. Unit 1 was in Run at approximately 89% power and Unit 2 was in Refuel.

The Unit 1 Operator (Licensed Reactor Operator) had just completed a portion of LOS-DG-M1. The Operator at this time commenced to synchronize the "0" Diesel Generator (DG) output with Bus 241Y and close the "0" DG output breaker to Bus 241Y but the breaker would not close even after two attempts.

A second Operator also tried to synchronize the "0" DG output with bus 241Y and close the breaker but without success.

The Operating Department with Electrical Maintenance in attendance racked the breaker from "connect" to "test" and found that the breaker would close while in "test". After the breaker was racked to "connect" it was able to be closed and passed its surveillance satisfactorily. Troubleshooting efforts on the breaker "close" circuitry revealed no discrepancies. All breaker components, including associated closure permissive contacts, were verified to operate as designed following the event. The same event occurred on July 27, 1987 and the cause was determined to be a faulty Unit 2 synchroscope. After the synchroscope was replaced, this failure never reoccurred.

Therefore, LaSalle Station feels that the root cause of the January 15, 1987 failure was also the synchroscope.

This event is being reported as a Special Report per Technical Specification 4.8.1.1.3. as a non-valid test failure.

TEXT

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): 1/2 Event Date: 1/15/87 Event Time: 1045 hours

Reactor Mode(s): 1/5 Mode(s) Name: Run/Refuel Power Level(s): 89%/0%

B. DESCRIPTION OF EVENT

On January 15, 1987 at approximately 1045 hours, LaSalle Operating Surveillance LOS-DG-M1 ("0" Diesel Generator Operability Test) was being performed. Unit 1 was in Run at approximately 89% power and Unit 2 was in Refuel. No systems or components were inoperable at the beginning of this event which contributed to the event.

The Unit 1 Nuclear Station Operator (NSO Licensed Reactor Operator) had just completed operating the "0" Diesel Generator (DG) [EK] for 60 minutes at 2600 KW with the Unit 1 "0" DG output breaker to bus 141Y closed. As per the procedure the Operator unloaded the "0" DG and opened the "0" DG output breaker to Unit 1 bus 141Y. The Operator at this time commenced to synchronize the "0" DG output with bus 241Y (Unit 2) and close the "0" DG output breaker to bus 241Y. The Operator tried twice to close the "0" DG output breaker to bus 241Y without success.

The Operator then gave the control of the "0" DG to a second Operator to have him try to synchronize the "0" DG output with bus 241Y and close the breaker. This second Operator also was not able to successfully synchronize the "0" DG output with bus 241Y and close the breaker. Both Operators had verified that the phase meter and DG output voltage were aligned correctly for all three attempts but the "0" DG output breaker to bus 241Y would not close.

At this time, the "0" DG was shut down and assistance was requested from the Electrical Maintenance Department to try to determine the problem.

This event is required to be reported as a Special Report per Technical Specification 4.8.1.1.3. as a non-valid test failure.

TEXT

C. APPARENT CAUSE OF EVENT

The Electrical Maintenance Department using a VOM commenced to verify that the contacts in the "0" DG output breaker to bus 241Y close circuitry were operating as expected. The Electrical Maintenance Department was able to determine that when the "0" DG output breaker to bus 241Y was initially in the "connect" position and open, no power was observed in the breaker close circuitry. After the "0" DG output breaker to bus 241Y was racked to the "test" position, power was observed in the breaker close circuitry. At this time while "0" DG output breaker to bus 241Y was racked to the "test" position, the Operator was able to close the breaker remotely. The Operator then racked the "0" DG output breaker to bus 241Y to the "connect" position and was able to synchronize the "0" DG output with bus 241Y and close the breaker satisfactorily.

The "0" DG was declared inoperable for Unit 2 from January 15, 1987, at 1045 hours to January 16, 1987, at approximately 0440 hours when the "0" DG was tested satisfactory per LOS-DG-M1.

A similar event occurred on July 27, 1987 when the Unit 2 "0" DG output breaker failed to close onto Bus 241Y as required during a monthly operability surveillance. Again, initial troubleshooting efforts on the breaker close circuitry failed to produce the cause of the problem. However, it was noticed that the "0" DG synchroscope meter movement was rotating erratically when engaged. It was also discovered that the "0" DG output breaker would close onto Bus 241Y when the synchroscope indicated approximately 11:57 o'clock, but not at 12:00 o'clock. Breaker closure is normally attempted at 12:00 o'clock on the synchroscope and all previous failed attempts at closure were attempted at 12:00 o'clock. Breaker closure is protected by a synchrocheck relay, which only allows breaker closure when the running and incoming phases are within a narrow band of each other. Troubleshooting confirmed the synchroscope meter to be out of calibration. The synchroscope could not be recalibrated and was replaced.

TEXT

C. APPARENT CAUSE OF EVENT (continued)

The failure of the Unit 2 DG output breaker to close onto bus 241Y on January 15, 1987 was originally thought to have been caused by the Potter and Brumfield 27X relay. This relay provides a DG voltage permissive in the closing circuit of the DG output breaker. This relay was suspected due to the station receiving information that this type of relay, if in the normally energized state, could fail due to varnish from the relay coil burning off and building up on the contacts. The failure in January 1987 and the failure in July 1987 occurred only on the Unit 2 "0" DG output breaker after a successful closure of the Unit 1 "0" DG output breaker onto Unit 1 bus 141Y. The same relay (27X), but different contacts, is used for the Unit 1 and Unit 2 "0" DG output breakers closure permissive. Between the time the Unit 2 synchroscope was replaced in July of 1987 and the modification was performed to replace the Potter and Brumfield relays in May of 1988, no other failures of this type occurred on the "0" DG and the same 27X relay installed. It is unlikely that a failure of this type would initially occur and never resurface over a period of 16 months. If the cause of the original failure in January 1987 was the 27X relay, the failure would have probably reoccurred before the modification was performed in May 1988. Therefore, LaSalle has concluded that the root cause of the failure on January 15, 1987 was the Unit 2 synchroscope and this event, therefore, does not constitute a valid test failure per Regulatory Guide 1.108.

Because this was originally considered to be a valid test failure on January 15, 1987, the Unit 2 Diesel Generator test frequency was increased from once per 31 days to once per 14 days per LaSalle County Station Technical Specification surveillance requirements 4.8.1.1.2.a and Table 4.8.1.1.2-1. However, since this was not a valid test failure, the test frequency should not have been increased and should have remained at once per 31 days.

D. SAFETY ANALYSIS OF EVENT

The safety consequences of this occurrence are minimal because this was not a valid test failure. The "0" DG would have been able to perform its safety function if required.

E. CORRECTIVE ACTION

Troubleshooting under Work Request L64715 verified that the "0" Diesel Generator Unit 2 Output Breaker operated as designed. On July 27, 1987, a similar event occurred and the cause was determined to be the synchroscope for the Unit 2 "0" DG output breaker. The synchroscope was replaced and calibrated. Since the replacement there have been no other occurrences of this type.

TEXT

F. PREVIOUS EVENTS

LER Number	Title
LER-374/86-001-00	"C" Diesel Generator Output Breaker Failure to Close Due to Faulty Contacts

G. COMPONENT FAILURE DATA

Manufacturer	Nomenclature	Model Number	MFG Part Number
General Electric	Synchroscope	RT6120V	106452AAAA1

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

August 30, 1988

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

Dear Sir:

Licensee Event Report #87-002-02, Docket #050-373 is being submitted to your office to supercede previously submitted Licensee Event Report 87-002-01 to include additional findings on the "0" Diesel Generator Output Breaker.

for G. J. Diederich
Station Manager
LaSalle County Station

GJD/HTV/kg

Enclosure

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

IE22
1/1