NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Perry Nuclear Power Plant, Unit 1	0 5 0 0 0 4 4 0	1 OF 0 3

TITLE (4) Unexpected Automatic Start Of Division 1 Diesel Generator Building Ventilation System Cause By Failure Of D.C. Power Converter.

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 0 0
0 9	0 3	8 8	8 8	—	0 3 4	— 0 0	0 9	3 0	8 8		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	1 0 0	20.402(b)	20.405(c)	X 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)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		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
Gregory A. Dunn, Compliance Engineer, Extension 6484	2 1 6 2 5 9 - 1 3 1 7

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	
X	E I K	C N V	A 1 2 3	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 September 3, 1983, at 1509, an unexpected automatic start of the Division 1 Diesel Generator Building Ventilation system (DGBVS) occurred. Plant operators verified that the Division 1 Diesel Generator was not in operation, and returned the DGBVS to the standby readiness condition. During troubleshooting activities, one additional automatic start of the DGBVS occurred.

The cause of this event was the failure of a 125/24 VDC converter in the diesel generator control circuitry. The failure of this converter caused an automatic initiation signal to be sent to the DGBVS prior to tripping the 125 VDC supply breakers to the control circuitry.

The failed converter was replaced with an exact replacement from stock, and retests were performed satisfactorily to demonstrate operability of the Division 1 Diesel Generator.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Perry Nuclear Power Plant, Unit 1	0 5 0 0 0 4 4 0	8 8	— 0 3 4	— 0 0	0 2 OF 0 1 3

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

On September 3, 1988, at 1509, an unexpected automatic start of the Division 1 Diesel Generator Building Ventilation System (DGBVS) [VJ] occurred. At the time of this event, the plant was in Operational Condition 1 (Power Operation). Reactor thermal power was 100 percent of rated, and reactor coolant pressure was approximately 1000 psig.

On September 3, 1988, both of the Division 1 DGBVS fans were secured to allow plant operators to take log readings in the diesel generator rooms. Shortly thereafter, at 1509, the Division 1 "Diesel Generator Out-of Service" annunciator was received in the control room, and control room operators discovered both DGBVS fans operating. The system was returned to standby readiness at 1525. Operators discovered that two 125 VDC circuit breakers (CB3 and CB4) which feed one of two redundant starting circuits were tripped. The Unit Supervisor declared the Division 1 Diesel Generator inoperable at 1530, and placed it in the secured status. In accordance with Technical Specifications, appropriate actions were taken to verify operability of redundant equipment. When CB3 and CB4 were reclosed in an attempt to return the electrical lineup to normal, both breakers immediately tripped, causing an additional automatic start of the DGBVS fans. Operators returned one of the DGBVS fans to Standby Readiness, leaving the remaining DGBVS fan running. Troubleshooting was initiated to determine the cause of the failure.

Troubleshooting identified the cause of the event as a failed 125/24 VDC converter [CNV] in the diesel generator control circuitry. This converter (Airpax Electronics Converter, Airpax Model No. 080-105-0017, Delaval Part No. F596-010) supplies the control tachometer which provides automatic initiation signals to the DGBVS when the diesel generator is started. The converter was replaced with an exact replacement, and retests were completed to verify proper operation of the system. The Division 1 Diesel Generator was returned to service and declared operable at 1333 on September 5, 1988. Visual inspection of the failed part indicated evidence of arcing and short circuit, with the cause for the failure unknown.

Unexpected starts of the DGBVS have been documented by LERs 86-019, 86-031, 86-042, 86-082, 87-009, 87-022, and 88-011. These events have been attributed to problems associated with the control tachometer, and have not involved the converter which failed on September 3. This converter was the originally installed part, and has not had any history of failure or improper operation.

The Division 1 Diesel Generator is served by two independent starting circuits, provided with separate power supplies. The converter failure and subsequent breaker trips affected only one of these redundant circuits, while the other circuit remained capable of providing the necessary automatic start functions. This event, therefore, did not constitute a Diesel Generator failure. The Diesel Generator Building Ventilation system is an engineered safety feature designed to provide ventilation and cooling to the Diesel Generator Building. With the diesel generator shutdown, one fan is normally in operation for each diesel generator room. The second fan will

* U.S.GPO:1986-0-624-538/455

automatically start when the diesel generator is started. Once actuated, the system operated as expected, and would have satisfactorily provided adequate cooling in the event of an automatic diesel generator start. This event, therefore, had no safety significance.

The failed converter was replaced with an exact replacement from stock. No additional corrective actions are planned at this time; however, routine system performance monitoring will be performed as required. A spare converter will be returned to the supplier for evaluation of failure mode.

Energy Industry Identification System Codes are identified in the test as [XX].