

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION
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J. DOERING, JR.
 PLANT MANAGER
 LIMERICK GENERATING STATION

July 16, 1992

Docket No. 50-353
 License No. NPF-85

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

SUBJECT: Licensee Event Report
Limerick Generating Station - Unit 2

This LER reports an inadvertent start of a Unit 2 Emergency Diesel Generator, an Engineered Safety Feature. The cause of this event was a personnel error in that a non-licensed operator failed to follow a system operating procedure.

Reference:	Docket No. 50-353
Report Number:	2-92-005
Revision Number:	01
Event Date:	June 5, 1992
Report Date:	July 16, 1992
Facility:	Limerick Generating Station P.O. Box 2300, Sanatoga, PA 19464-2300

This revised LER is being submitted to provide the reporting requirement on the LER form and to provide minor editorial changes. Changes to this LER are indicated by revision bar markers in the right hand margins. This LER is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv).

Very truly yours,

DBN:cah

cc: T. T. Martin, Administrator, Region I, USNRC
 T. J. Kenny, USNRC Senior Resident Inspector, LGS

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Handwritten initials/signature

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Limerick Generating Station, Unit 2

DOCKET NUMBER (2) 0 5 0 0 0 3 5 3

PAGE (3) 1 OF 0 4

TITLE (4) Inadvertent Emergency Diesel start as a result of personnel error.

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 6	0 5	9 2	9 2	0 0 5	0 1	0 7	1 6	9 2			0 5 0 0 0
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)											

OPERATING MODE (9) 1	20 402(a)	20 405(a)	<input checked="" type="checkbox"/>	50 73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 1 0 0	20 405(a)(1)(i)	50 38(a)(1)		50 73(a)(2)(iv)	73.71(c)
	20 405(a)(1)(ii)	50 38(a)(2)		50 73(a)(2)(iv)	OTHER (Specify in Abstract below and in Text, NRC Form 308A)
	20 405(a)(1)(iii)	50 73(a)(2)(i)		50 73(a)(2)(iv)(ii)	
	20 405(a)(1)(iv)	50 73(a)(2)(ii)		50 73(a)(2)(iv)(iii)	
	20 405(a)(1)(v)	50 73(a)(2)(iii)		50 73(a)(2)(iv)(iii)	
	20 405(a)(1)(vi)	50 73(a)(2)(iv)		50 73(a)(2)(iv)	

LICENSÉE CONTACT FOR THIS LER (12)

NAME G. J. Madsen, Regulatory Engineer, Limerick Generating Station

TELEPHONE NUMBER 2 1 5 3 2 7 - 1 2 0 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRCDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On June 5, 1992, during performance of System (S) operating procedure S92.2.N, "Shutdown of the Diesel Generators," the Unit 2 D21 Emergency Diesel Generator (EDG) was inadvertently started. The inadvertent start of the EDG resulted in an unplanned actuation of an Engineered Safety Feature. A non-licensed operator skipped a step in the procedure and did not depress the Emergency Stop Button prior to supplying starting air to the EDG. These steps are performed to remove any excess lube oil from the exhaust manifold following an EDG shutdown. Contributing causes were task interruption and less than adequate previous corrective actions. The corrective actions from two similar EDG starts failed to identify the consequences of the imposed task interruption. Insufficient barriers were added to prevent recurrence. The inadvertent start did not affect the operability of the D21 EDG and there were no detrimental effects. The operator was counseled and an Operator Aid was posted on the Unit 1 and 2 EDG Manual Air Start valves providing a reminder about the required actions. The Operations Manual chapter pertaining to procedure use and compliance was revised to more clearly communicate management's expectations in recognizing task interruptions and proper procedure use when interruptions occur. The event, the Operator Aid and the concern of task interruption were discussed in a Shift Training Bulletin that was issued to all Operations personnel and will be discussed further in Non-Licensed Operator Continuing Training.

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		YEAR 9 2	SEQUENTIAL NUMBER - 0 0 5	REVISION NUMBER - 0 1	0 2	OF 0 4

TEXT IF more is see it required, use additional NRC Form 3054 (1/77)

Unit Conditions Prior to the Event:

Unit 2 was in Operational Condition 1 (Power Operation) at 100% power.

The Unit 2 D21 Emergency Diesel Generator (EDG, EIIS EK) had just been shut down following reliability testing of the speed governor when this event occurred. There were no concerns regarding the speed governor as a result of this test. There were no other systems or structures being tested or inoperable that contributed to this event.

Description of the Event:

On June 5, 1992, at 1311 hours, the D21 EDG, an Engineered Safety Feature (ESF), was inadvertently started. This occurred during performance of System (S) operating procedure S92.2.N, "Shutdown of the Diesel Generators," when a plant operator skipped a procedure step and failed to depress the Emergency Stop Button while completing the procedure.

Procedure S92.2.N was being performed by a utility employed non-licensed plant operator at the local EDG control panel in the D21 EDG enclosure. Following the EDG run, procedure step 8.8.1 directs the operator to depress the Emergency Stop Button prior to air barring the engine, which involves rotating the engine by supplying starting air (EIIS:EC) to the pistons. These steps are performed to remove any excess lube oil from the exhaust manifold to reduce exhaust line smoking during subsequent EDG starts. The procedure requires a twenty minute EDG cooldown prior to performing the air barring section of the procedure. During this period, the operator stopped to discuss test equipment problems with Instrumentation and Controls (I&C) Technicians. Following this discussion, the operator returned to the procedure to continue the air barring process. He unknowingly started further into the procedure than where he had stopped prior to the interruption, and skipped the step to depress the Emergency Stop Button. At 1311 hours, the operator opened the manual air start valve, 92-2305A, to rotate the engine. The operator observed the EDG was starting and noticed that the Emergency Stop Annunciator was not illuminated on the local alarm panel. The D21 EDG accelerated to its rated speed but the D21 EDG electrical output breaker (EIIS:BKR) did not close and supply power to the U21 4KV Safeguard Bus since this bus was being powered by the offsite power source at the time of the event.

The operator then contacted the Main Control Room (MCR) to report the inadvertent EDG start. After verifying that no valid initiation signals existed, the operator secured the EDG. The procedure was then satisfactorily completed.

The inadvertent start of the EDG constituted an unplanned actuation of an ESF. A four (4) hour notification was made to the NRC on June 5, 1992, at 1613 hours,

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

a thorough review of the current status of the task following the interruption was addressed during the counseling process.

An Operator Aid was applied to the Manual Air Start valves on the Unit 1 and Unit 2 EDGs. This posting will serve as a reminder to Operations personnel to stop and think about the actions required to air bar the EDG prior to operating the Manual Air Start valves.

A Shift Training Bulletin discussing this event was issued to all Operations personnel. The bulletin explained the Operator Aids posted at the Manual Air Start valves and the intent of the barrier. The bulletin reinforced management's expectation on procedure use and explained that the operators should familiarize themselves with the task and any critical procedure steps to minimize the potential for errors. The bulletin also discussed the need to recognize task interruptions while performing work activities and to perform a thorough review of current activity status prior to continuing with the task.

The Operations Manual chapter pertaining to procedure use and compliance was revised to more clearly communicate management's expectations in recognizing task interruptions and proper use when interruptions occur.

This event and the two previous events will be discussed during the Current Operational Related Events portion of the Non-Licensed Operator Continuin Training that is expected to begin in August 1992. The discussion will review the procedures associated with air barring the EDGs and will identify the critical steps.

Previous Similar Occurrences:

Unit 2 LERs 2-91-006 and 2-91-014 reported inadvertent EDG starts due to procedure non-compliance during air barring activities. The adequacy of the previous corrective actions as they relate to this event is discussed in the cause section of this report.

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

in accordance with the requirements of 10CFR50.72(b)(2)(ii). This report is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(iv).

Analysis of the Event:

The D21 EDG ran for less than 20 seconds before being shut down by the operator. The D21 EDG was being run for investigative testing and was available during this event. The inadvertent start did not affect the operability of the D21 EDG. This type of inadvertent start has minimal detrimental effects, such as thermal cycling and wear, on the EDG because the operator took immediate action to shut down the EDG. The remaining Unit 2 EDGs and both offsite AC sources were operable and available at the time of this event. Therefore, the actual and potential consequences of this event were minimal.

Cause of the Event:

The cause of this event was personnel error in that the operator failed to perform step 8.8.1 of procedure S92.2.N. Contributing causal factors were task interruption and less than adequate previous corrective actions. Procedure S92.2.N requires a twenty minute cooldown period before air barring the engine. During this period, the operator had discussed other test related concerns with the I&C technicians. Following this discussion, the operator returned to the procedure to continue the air barring process. He unknowingly started further into the procedure than where he had stopped prior to the interruptions and had skipped the step to depress the Emergency Stop Button.

There were two previous air barring events resulting from failures to depress the Emergency Stop Button. On April 4, 1991, the D22 EDG was started after an operator depressed the Engine Shutdown/Reset button instead of the Emergency Stop Button. This was reported in Unit 2 LER 2-91-006. Procedure revisions were made as human performance enhancements to clarify use of the proper switch and the expected indications. On August 1, 1991, the D24 EDG was started during performance of a Surveillance Test procedure after an operator failed to depress the Emergency Stop Button before operating the Manual Air Start valve. This was reported in Unit 2 LER 2-91-014. The operator reported that he did not have the procedure in-hand while performing this evolution and task interruption was also a contributing causal factor. Procedure guidance was determined to be satisfactory to prevent inadvertent EDG starts following this event. The previous corrective actions failed to identify the consequences of the imposed task interruption (i.e., the twenty minute engine cool-down period) on the air barring process. Insufficient barriers to inadvertent EDG starting were added to prevent recurrence.

Corrective Actions:

The operator involved in the event was counseled on the importance of procedure compliance and strict attention to detail. The need for recognition of interruptions that occur during performance of work activities and the need for