

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION  
P. O. BOX A  
SANATOGA, PENNSYLVANIA 19464

(215) 327-1200 EXT. 2000

M. J. MCCORMICK, JR., P.E.  
PLANT MANAGER  
LIMERICK GENERATING STATION

May 18, 1990  
Docket Nos. 50-352  
50-353  
License Nos. NPF-39  
NPF-85

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

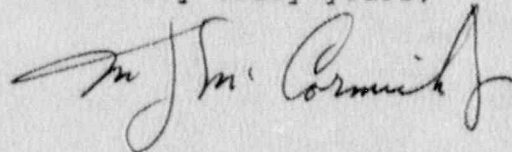
SUBJECT: Voluntary Licensee Event Report  
Limerick Generating Station - Units 1 and 2

This voluntary report describes the loss of the capability to activate the public alert notification system (sirens) by the local counties within the Emergency Planning Zone due to equipment problems and personnel error.

Reference: Docket Nos. 50-352  
50-353  
Report Number: 1-90-006  
Revision Number: 01  
Event Date: January 12, 1990  
Discovery Date: February 23, 1990  
Report Date: May 18, 1990  
Facility: Limerick Generating Station  
P.O. Box A, Sanatoga, PA 19464

This revised LER is being submitted to provide a report date that was mistakenly omitted from the first page of the original LER. The original report date was March 30, 1990.

Very truly yours,



VAW:nlk

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

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Limerick Generating Station, Unit 1	DOCKET NUMBER (2) 0   5   0   0   0   3   5   2	PAGE (3) 1 OF 0   6
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TITLE (4) Degradation of Public Notification System Activation Capability due to 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	1	2	9	0	9	0	0	6	0	1	0	0	5	0	0	0	3	5	3		
0	1	1	2	9	0	9	0	0	0	0	6	0	1	0	0	5	0	0	0		

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)									
POWER LEVEL (10) 1   1   0   1   0	20.402(b)	20.408(c)	50.73(a)(2)(iv)	73.71(b)						
	20.406(a)(1)(ii)	50.36(e)(1)	50.73(a)(2)(v)	73.71(c)						
	20.408(a)(1)(ii)	50.36(e)(2)	50.73(a)(2)(vi)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A) voluntary						
	20.408(a)(1)(iii)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(A)							
	20.408(a)(1)(iv)	50.73(a)(2)(iii)	50.73(a)(2)(viii)(B)							
20.408(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)								

LICENSEE 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 NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

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 February 23, 1990, it was determined that during the time period January 12, 1990 to February 5, 1990, the capability to activate the emergency public notification system (sirens) from Berks, Chester, and Montgomery counties was lost at the county offices and personnel trained in the back-up activation of the sirens from the site were not always available. Additionally, on February 7, 1990, the capability to activate the Berks county sirens was lost at the county office for a period of approximately 18 hours. The first event is attributable to a problem with telephone lines between the counties and Limerick Station caused by a personnel error by a non-utility telephone service person and the February 7, 1990 event to a problem with siren control computer at Berks county and a second unrelated telephone line problem. A back-up capability exists at the site and at Philadelphia Electric Company's Valley Forge Testing and Laboratory facility to activate the sirens at the request of the county. However, personnel trained in this activation were not available at all times on site nor at the Testing and Laboratory facility. The equipment problems were resolved by February 8, 1990. A procedure for siren activation from the site has been written and related training for site personnel was completed on March 19, 1990. Investigation in the personnel error for any contributing factors is continuing.

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		90	006	01	02	OF 06

TEXT (If more space is required, use additional NRC Form 305A's) (17)

Unit Conditions Prior to the Event:

	Unit 1	Unit 2
Operating Condition:	1 (Power Operation)	1
Power Level:	100%	100%

Description of the Event:

On February 23, 1990, Philadelphia Electric Co. (PECO) personnel determined that during the period January 12, 1990 to February 5, 1990, the emergency public alert/notification system (sirens) was not able to be activated from the 3 counties, Berks, Chester and Montgomery, in the Emergency Planning Zone (EPZ). Additionally Berks county had equipment problems on February 7, 1990 that resulted in the inability of that county to activate its sirens for approximately 18 hours.

The sirens within the Limerick Generating Station (LGS) EPZ are tested by agreement with Berks, Chester and Montgomery counties every month. This is a functional test in which the sirens are sounded simultaneously by the counties for a period of three minutes. The siren system has the back up capability to be activated from the LGS Technical Support Center (TSC) or the PECO Testing and Laboratory Facility in Valley Forge, Pa. The sirens are activated by a telephone signal from the counties to a radio transmitter located at LGS, and a verification signal is sent back by the sirens after actuation.

During the monthly test for February, conducted on February 5, 1990 at 1400 hours, no verifying signals were returned to the siren control system in the Limerick TSC upon activation of the sirens at the counties. Investigation revealed a problem with the telephone circuit between the counties and LGS. Because the siren control system at the LGS TSC was in a test mode, the sirens were successfully activated at 1415 hours from PECO's Valley Forge Testing and Laboratory facility to prove the sirens operability. The cause of the problem was identified to be disconnected telephone lines and was resolved on February 5, 1990.

On February 7, 1990 at 1500 hours during the follow-up of the problems with the February monthly test, a PECO technician was dispatched to the Berks County Communication Center to get a report from the siren control computer. The technician discovered that the Berks county siren control system was inoperable. Suspecting a software problem, he obtained a new copy of the software, however, replacing the software did not restore operability. The Berks county siren

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

controller was replaced by a spare, at 2000 hours. When the replacement controller was tested, it appeared to function properly, but no signal could be transmitted to the sirens. On February 8, 1990, at 0800 hours, PECO technicians troubleshooting the telephone circuit determined that the Berks county "leg" of the circuit was not operable. The local telephone company was contacted, and the Berks county leg of the telephone circuit was returned to service at 1400 hours on February 8, 1990.

During the review of the event by emergency preparedness personnel, it was determined that, during the time period that the sirens could not be activated by the county's personnel, PECO personnel at LGS or at the PECO Valley Forge Testing and Laboratory Facility trained in activating the sirens were not available at all times and no approved procedure existed for siren activation from the site. Therefore, it was determined on February 23, 1990, that these conditions resulted in a major loss of communications (offsite notification) capability and were reportable under 10 CFR 50.72(b)(1)(v) and a one hour notification was made at 1700 hours on February 23, 1990. This report is being submitted on a voluntary basis because of the nature of the event.

#### Consequences of the Event:

During the time period, January 12 to February 8, 1990, that the sirens could not be activated from the counties, no emergency occurred and the sirens were not called on to perform their function. The sirens would be sounded only during an emergency when plant efforts have failed to prevent a significant release of radioactive material from the site or during a nuclear attack or other major disaster.

Two back-up capabilities exist to sound the sirens if the capability to do so is lost at the counties. This can be done either at the LGS TSC via the siren control system or from PECO's Valley Forge Testing and Laboratory Facility. However this capability existed only during normal working hours when the Valley Forge Testing and Laboratory Facility was staffed and the LGS Siren Administrator was available. Personnel capable of utilizing the LGS TSC siren control system to sound the sirens were not available at all times during backshift periods and weekends to activate the sirens upon demand. In the event that such a need arose, the inability to sound the sirens at the county would not have been detected until the time of activation occurred. Appropriate personnel at the plant could have been walked through the activation procedure via telephone by the siren administrator, if available, or other personnel who regularly work

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with the siren system, but we believe this would have resulted in an approximately 30 minute delay in sounding the sirens.

Cause of the Event:

The cause of the disconnection of the telephone lines is a personnel error by a non-utility telephone service person. Investigation of the February 5, 1990 event revealed that the dedicated telephone circuit which carries the siren control signal to and from the counties and LGS had been disconnected in the LGS telephone equipment room. This circuit was disconnected at the terminals where the connection is made to route the lines out of the telephone equipment room to the siren control system in the LGS TSC. Further investigation of telephone service records reveals that this disconnection had most probably been made on January 12, 1990 between 1509 and 1540 hours by a telephone service person. A Human Performance Evaluation System (HPES) investigation has been initiated to determine the circumstances surrounding the lifing of the telephone wires and identify any contributing causes that can be resolved.

The problem with the Berks County siren controller was caused by a defective control system log disk. The failure of the Berks county "leg" of the telephone circuit was caused by the failure of an electronic card at the telephone company's local central office. Both of these are considered to be the types of random failures expected occassionally from these types of equipment.

The cause of the failure to have plant personnel trained in the activation of the sirens available at all times at the site was caused by a lack of a continuing training program for the Instrumentation and Controls (I&C) technicians to maintain their proficiency with the system. There was no approved procedure for siren activation from the site because most routine activities involving the system were performed by personnel expert in the system. The site activation capability is not routinely exercised and so the lack of a procedure was not apparent. Also contributing is the fact that the responsibility for sirens rests with corporate, not site emergency preparedness personnel.

Investigation has revealed that alarms were indicated at all three counties of the loss of communication when it occurred on January 12, 1990. However, the alarm was not recognized at any of the counties and PECO was not informed. The Limerick TSC siren control system is utilized in a test mode and therefore did not identify the loss of communications capability and thus the problem was not identified at

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

the time of its occurrence on January 12, 1990. The notification of the NRC therefore was not made in a timely fashion because of a lack of communication between those working on the siren system problems and the siren system administrators who are cognizant of the reportability requirements associated with the system.

Corrective Actions:

The telephone lines were reconnected for all 3 counties on February 5, 1990 restoring local activation capability. The subsequent problem with the Berks county leg of the circuit was repaired on February 8, 1990 and the siren control system restored at the same time.

Following the discovery on February 23, 1990 that trained site personnel were not available, the corporate Emergency Preparedness siren administrator, who is trained in activating the sirens, remained on call if the sirens needed to be sounded from the site. Beginning on February 26, 1990 the siren administrator conducted training for shift I&C technicians so that personnel on shift would be capable of sounding the sirens from the TSC. This initial training for shift I&C technicians was completed on March 19, 1990.

Actions Taken to Prevent Recurrence:

A formal training lesson plan has been written and approved by the site Training Section and will be incorporated into the continuing training for I&C technicians with siren system responsibilities. A new Emergency Plan implementing procedure, EP-302, "Activation of the Alert Notification System from the LGS Technical Support Center," was approved on March 16, 1990 on siren activation from the TSC. A new Surveillance Test was approved on March 16, 1990 to perform the monthly test including provisions to notify appropriate personnel of problems. The terminals where the phone lines were disconnected in the telephone room have been booted to make it more difficult to lift these lines and the lines have been tagged to have Shift Supervision, or the Site Emergency Preparedness Coordinator notified if work on those lines is required. Additional guidance is being provided to the counties on recognition of siren problem indications by the Corporate Siren Administrator.

The HPES investigation initiated to determine the circumstances surrounding the lifting of the telephone wires will identify any

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		9   0	-   6   0   6	-   0   1	0   6	OF	0   6

TEXT (If more space is required, use additional NRC Form 306A (9-83))

additional corrective actions needed to ensure that the event does not recur.

Previous Similar Occurrences:

None

Tracking Codes:

- A6 - failure to properly identify equipment
- A9 - failure to properly interpret information/results
- D3 - no approved procedure
- B99 - other deficiency