

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

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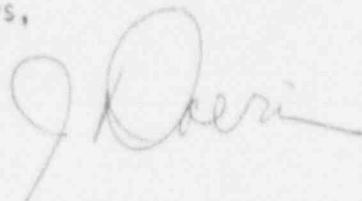
J. DOERING, JR.
PLANT MANAGER
LIMERICK GENERATING STATIONJuly 10, 1991
Docket No. 50-352
License No. NPF-39U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555SUBJECT: Licensee Event Report
Limerick Generating Station - Unit 1

This LER reports a condition prohibited by Unit 1 Technical Specifications (TS) which existed on June 10, 1991. During a Unit 1 reactor startup, reactor pressure was increased above 150 psig with the Reactor Core Isolation Cooling System not operable as required by TS Section 3.7.3 which resulted in a violation of TS Section 3.0.4. This event was due to a cognitive personnel error in that a licensed Shift Supervisor failed to comply with the requirements of the startup procedure and did not ensure compliance with the TS.

Reference:	Docket No. 50-352
Report Number:	1-91-016
Revision Number:	00
Event Date:	June 10, 1991
Report Date:	July 10, 1991
Facility:	Limerick Generating Station P.O. Box A, Sanatoga, PA 19464

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B).

Very truly yours,



KCS/cah

cc: T. T. Martin, Administrator, Region I, USNRC
T. J. Kenny, USNRC Senior Resident Inspector, LGS9107160279 910710
PDR ADOCK 05000352
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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 1** OF **0 5** PAGE (3)

TITLE (4) **This LER reports a condition prohibited by Technical Specifications where reactor pressure was increased above 150 psig with the RCIC system inoperable.**

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	1 0	9 1	9 1	0 1 6		0 0	7 1 0	9 1			0 5 0 0 0

OPERATING MODE (9) **2** THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5 (Check one or more of the following) (11)

POWER LEVEL (10) 0 0 1	20.402(a)	20.405(a)	50.73(a)(2)(iv)	73.71(b)
	20.405(a)(1)(i)	50.38(a)(1)	50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.38(a)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 3884)
	20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)	
	20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(k)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
G. J. Madsen, Regulatory Engineer, Limerick Generating Station	2 1 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 NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/>	<input type="checkbox"/>				

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

On June 10, 1991, during a Unit 1 reactor startup, reactor pressure was increased above 150 psig with the Reactor Core Isolation Cooling (RCIC) system not operable as required by Technical Specification (TS) Section 3.7.3. The plant entered a TS specified condition (reactor pressure greater than 150 psig) when the requirements of the TS Limiting Condition for Operation were not met and the associated TS Action required a shutdown. Therefore, this resulted in a condition prohibited by TS Section 3.0.4. The actual consequences of this event were minimal in that there was no accident requiring the RCIC system to perform its design function. The primary cause of this event was a cognitive personnel error in that a licensed Shift Supervisor failed to comply with the normal plant startup procedure and did not ensure compliance with the requirements of TS Sections 3.0.4 and 3.7.3. Immediately upon discovery of violation of TS Section 3.0.4, the procedure to align the RCIC system for automatic operation was started. The Shift Supervisor has been counseled on the importance of procedure compliance and the use of proper communications methods. Corrective actions for the contributing factors include: the LER will be included in licensed operator required reading and an evaluation will be made to determine whether the Electro-Hydraulic Control system can be used to accurately control reactor pressure below 150 psig during startups.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	POCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Limerick Generating Station, Unit 1	0 5 1 0 0 0 3 5 2 9 1	—	0 1 1 4	—	0 0	0 2	OF 0 5

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

Unit Conditions Prior to the Event:

Unit 1 was in Operational Condition 2 (Startup) at less than 1% power level. Reactor startup was in progress in accordance with General Plant procedure GP-2, "Normal Plant Startup", with reactor pressure at 100 psig.

On June 10, 1991, during midnight shift, the Reactor Operators (ROs) were manually maintaining a controlled reactor water level band during the power increase. The Reactor Water Cleanup (RWCU) (E11S:CE) system in the letdown mode and the Condensate pumps (E11S:JD) through the Feedwater system (E11S:FJ) were in manual operation for reactor water level control. Reactor pressure was below the 150 psig setpoint of the Electro-Hydraulic Control (EHC) (E11S:JJ) system for automatic reactor pressure control and bypass valve operation. The High Pressure Coolant Injection (HPCI) (E11S:BJ) and the Reactor Core Isolation Cooling (RCIC) (E11S:BN) systems were inoperable, but not required to be operable at those plant conditions.

There are two Shift Supervisors on shift. Both Shift Supervisor positions are filled by utility employed senior licensed operators. The Main Control Room (MCR) Shift Supervisor is responsible for directing plant operation. The floor Shift Supervisor is responsible to monitor and direct the activities of the floor operators and acts as the fire brigade team leader in response to fire alarms. The floor Shift Supervisor was directing the startup.

Description of the Event:

On June 10, 1991, during a Unit 1 reactor startup, reactor pressure was increased above 150 psig with the RCIC system not operable. This resulted in a condition prohibited by Technical Specification (TS) Section 3.0.4 since the plant entered a specified condition (reactor pressure greater than 150 psig) when conditions for the TS 3.7.3 Limiting Condition for Operation (LCO) were not met and the associated Action required a shutdown. TS Action 3.7.3.a requires that with reactor pressure greater than 150 psig and HPCI and RCIC inoperable, RCIC be restored to the operable status or be in at least HOT SHUTDOWN within the next 12 hours and reduce reactor steam dome pressure to less than or equal to 150 psig within the following 24 hours.

On June 10, 1991, at 0600 hours, the floor Shift Supervisor, who had been directing implementation of procedure GP-2, responded to a fire alarm acting as the fire brigade team leader. The MCR Shift Supervisor then assumed responsibility for implementing procedure GP-2. The Chief Operator (CO) became involved in implementing Special Event (SE) procedure, SE-8, "Fire", for the fire alarm and apparent initiation of the automatic fire suppression system (E11S:XP).

At 0615 hours, reactor pressure reached 100 psig. The MCR Shift Supervisor directed the CO to warm up, pressurize and unisolate the RCIC system as directed

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Limerick Generating Station, Unit 1	0500035291	—	016	—	00	03 OF 05

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

by GP-2. The CO did not repeat-back the request nor did he accomplish this task due to his ongoing involvement with the fire brigade.

The Unit 1 RO continued to pull control rods in order to achieve 150 psig reactor pressure as directed by procedure GP-2. At 150 psig, a bypass valve was expected to automatically open as controlled by the EHC system. This would then stabilize reactor pressure.

At 0645 hours, reactor pressure was 146 psig. Shift turnover from night shift to day shift was in progress. During turnover, the MCR Shift Supervisor who was leaving, noticed reactor pressure in excess of 150 psig. He informed the oncoming Shift Supervisor, who would be directing implementation of procedure GP-2 during day shift, that the RCIC system steam line would have to be unisolated but did not inform the oncoming Shift Supervisor that he had observed reactor pressure in excess of 150 psig.

Following shift turnover, the day Shift Supervisor directing the implementation of procedure GP-2 recognized that RCIC was isolated with reactor pressure greater than 150 psig. At 0738 hours, RCIC was declared inoperable and TS Action 3.7.3.a was entered. This TS Action requires that with the HPCI and RCIC systems inoperable, the unit must be shutdown to at least HOT SHUTDOWN within 12 hours, and have reactor steam dome pressure reduced to less than or equal to 150 psig within the following 24 hours. It was also determined that TS Section 3.0.4 had been violated since a specified condition (reactor pressure greater than 150 psig) was entered when the conditions for the LCO of TS Section 3.7.3 were not met and the associated action required a shutdown.

Control Rod withdrawal was halted at 0657 hours. A bypass valve automatically opened at 0703 hours as controlled by the EHC system set to control reactor pressure at 150 psig, but actually maintaining 175 psig. The process to declare the RCIC system operable in accordance with procedure S49.1.A, "Normal RCIC Line-Up for Automatic Operation," and procedure S49.1.B, "Recovery from System Isolation, Warmup and Pressurization of RCIC Steamline," was started immediately upon discovery of the violation of TS Section 3.0.4. The alignment for automatic operation was complete and the RCIC system was declared operable at 0938 hours.

This event resulted in a condition prohibited by Unit 1 TS. Therefore, this report is being submitted in accordance with the requirements of 10CFR50.73(a)(2)(i)(B).

Analysis of the Event:

The actual consequences of this event were minimal in that there was no accident requiring the RCIC system to perform its design function and no radioactive material was released to the environment.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Limerick Generating Station, Unit 1	0 5 0 0 0 3 5 2 9 1	—	0 1 6	—	0 0	0 4	OF 0 5

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

If a transient had occurred resulting in an automatic RCIC initiation signal during the 2 hours that the RCIC system was inoperable with reactor pressure above 150 psig, operators could have opened the isolation valves and started the system using system procedure S49.1.B. Additionally, reactor pressure was being controlled by the EHC pressure control system, through an open bypass valve, at 175 psig before RCIC was declared operable. The low pressure Emergency Core Cooling Systems (ECCS), consisting of the Core Spray System (ECCS:BM) and the Low Pressure Coolant Injection (ECCS:BO) mode of the Residual Heat Removal (RHR) system were operable and capable of injection throughout this event. The Condensate System and Control Rod Drive System (ECCS:AA) were in operation supplying normal vessel makeup. The availability of these systems ensures adequate core cooling would be maintained in the event of an accident.

Cause of the Event:

The cause of this event was a cognitive personnel error in that the MCR Shift Supervisor failed to comply with procedure GP-2 and did not ensure compliance with the requirements of TS Sections 3.0.4 and 3.4.3. Step 3.4.15.d of procedure GP-2 states, "Prior to reaching 150 psig Rx pressure, ensure RCIC aligned for automatic operation per S49.1.A." Reactor pressure exceeded 150 psig prior to aligning the RCIC system in this case.

Several factors contributed to this event.

- o The supervision provided by the MCR Shift Supervisor was less than adequate in that he did not follow up with the CO on his direction to warmup the RCIC system.
- o There were multiple cases of task interruption due to spurious fire alarms, involving the floor Shift Supervisor and the CO which resulted in less than adequate communication between the MCR Shift Supervisor and the CO. The fire alarms were for the Unit 2 Main Turbine area. The motor driven and the diesel driven fire pumps (ECCS:KP) each received auto start signals on the fire main header low pressure indicating that a water suppression system may have actuated. The floor Shift Supervisor responded to the alarm as the fire brigade leader and the CO implemented procedure SE-8.
- o The EHC system does not control accurately at low pressures due to transmitter calibration limitations. The EHC pressure setpoint was set at 150 psig but actually controlled reactor pressure at 175 psig.

Corrective Actions:

- o The MCR Shift Supervisor has been counseled on the importance of procedure compliance and use of proper communication methods, including the use of repeat-backs in accordance with the station Operations Manual Communications Standards.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Limerick Generating Station, Unit 1	0 5 1 0 0 0 3 5 2 9 1	— 0	1 6	— 0 0	0 5	OF 0 5

TEXT IF more space is required, use additional NRC Form 306A (1) (17)

- o This LER will be included in licensed operator required reading to discuss the inaccurate EHC system operation at low pressure due to transmitter calibration limitations and to increase operator awareness of the requirements for moving into a new TS specified condition (e.g., operation above 150 psig reactor pressure).
- o An evaluation will be made to determine whether the EHC system can be used to accurately control reactor pressure below 150 psig during startups. This would help avoid inadvertently exceeding 150 psig prior to having the RCIC system operable. This evaluation is expected to be completed by September 10, 1991.

Previous Similar Occurrences:

Limerick Generating Station, Unit 2 LER 2-89-007 reported a condition prohibited by TS in that the unit entered the Startup Operational Condition with the 'B' RHR subsystem not aligned in the LPCI mode due to failure to comply with procedure GP-2. To prevent recurrence of this event, procedure GP-2 was revised to identify those steps required to be completed prior to entry into each Operational Condition. The procedure step which was violated in this event (LER 1-91-016) did require alignment of the RCIC system for automatic operation prior to exceeding 150 psig reactor pressure. A specific error by the licensed MCR Shift Supervisor caused the violation of TS.

Previous LERs between 1987 and 1991 reported failures to comply with implementing procedures by licensed operators. The corrective actions for each of these LERs have reduced the frequency of occurrence of this type of personnel error. Operations management is continuing their efforts in making further improvements in this area, specifically in communication of expectations in this area. These types of personnel errors will continue to be monitored and appropriate corrective actions will be taken as deemed necessary.

Tracking Codes: A2 Failure to follow implementing procedures.