10 CFR 50.73

PHILADELPHIA ELECTRIC COMPANY

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

August 28, 1989

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 inoperability of the Unit 2 Reactor Enclosure Cooling Water radiation monitor for a length of time greater than allowed by Technical Specifications without the required ACTION being taken, due to a personnel error.

Reference:	Docket No. 50-353
Report Number:	2-89-004
Revision Number:	00
Event Date:	July 25, 1989
Report Date:	August 28, 1989
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). This LER is being submitted late because of delays in preparation due to additional work required to identify the root cause and additional causal factors. We regret any inconvenience this may have caused.

Very truly yours,

M. J. McCormick, Jr.
Plant Manager

DCS:sc

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

IE22
1/1

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)
Limerick Generating Station, Unit 2	0 5 0 0 0 3 5 3	1 OF 0 6

TITLE (4): Inoperability of Unit 2 RECW Radiation Monitor in Excess of TS Allowed Time Without the Required Action Being Taken Due To A 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 5 0 0 0
0 7	2 5	8 9	8 9	— 0 0 4	— 0 0	0 8	2 8	8 9		0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	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)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 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
C. R. Endriss, Regulatory Engineer, Limerick Generating Station	AREA CODE 2 1 1 5 — 3 2 7 1 — 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 July 25, 1989, the Unit 2 Reactor Enclosure Cooling Water (RECW) radiation monitor was determined by plant staff to have been inoperable for a time in excess of that allowed by Technical Specifications (TS) without the associated ACTION being taken resulting in a condition prohibited by TS. On June 26, 1989, the monitor was declared inoperable due to an erratic indicator, and Chemistry began the TS ACTION of sampling. On July 19, 1989, an invalid RECW radiation background measurement was obtained by Unit 2 Instrumentation and Control (I&C) personnel and then inappropriately utilized in performance of the functional ST. On July 21, 1989, the system was declared operable by Shift Supervision after review to verify no outstanding STs or Maintenance Request Forms. On July 25, 1989, plant staff discovered that performance of the functional ST resulted in non-conservative alarm setpoints for the monitor. Shift Supervision was notified, the system was declared inoperable, and Chemistry performed required sampling. The cause of this event was a personnel error compounded by a procedural deficiency and the existance of a Unit 2 Startup I&C group which was separate from the Unit 1 I&C group. The I&C personnel involved were counseled, Chemistry STs similar to and including the one associated with the event will be revised, and the two separate I&C groups will be incorporated into one common group.

Unit Conditions Prior to the Event:

Unit 2

Operating Mode: 4 (Cold Shutdown)

Reactor Power: 0%

Description of the Event:

On July 25, 1989, at 1930 hours, plant staff determined that the Unit 2 Reactor Enclosure Cooling Water (RECW)(EIIS:KM) Radiation Monitor (EIIS:MON)(20S165) had been inoperable due to a non-conservative alarm setpoint for a time in excess of that allowed by Technical Specification (TS) section 3.3.7.1, "Radiation Monitoring Instrumentation," without the associated ACTION being taken. The TS requires that alarm setpoints be $\leq$ 3 times the background radiation level. This constituted a condition prohibited by TS.

Prior to the event, on June 19, 1989, Instrumentation and Controls (I&C) personnel satisfactorily completed the initial performance of Surveillance Test (ST) ST-2-013-400-2, "Radiation Monitoring - Reactor Enclosure Cooling Water System Monitor Calibration/Functional Test (RE-26-211, RISH-13-2K606, RR-13-2R604 and FISHL-26-211)," utilizing a background radiation measurement of 200 cpm established by Chemistry personnel. On June 26, 1989, an erratic indication on the Unit 2 RECW radiation monitor was identified by Operations personnel, and a Maintenance Request Form (MRF) was generated and routed to the system engineer to investigate and correct the problem. The radiation monitor was declared inoperable by Shift Supervision at 1930 hours and Chemistry personnel began the TS ACTION of sampling and analyzing RECW.

On July 10, 1989, Chemistry personnel performed ST-5-026-876-0, "Evaluation of the HI and HI-HI Alarm Setpoints for the General Electric Liquid Radiation Monitors," which records background radiation readings for individual radiation monitors and generates alarm setpoints for the Unit 1 and Unit 2 Service Water (SW)(EIIS:KG) and RECW radiation monitors. On this ST, the Unit 2 RECW radiation monitor was listed as "Out of Service" with no new background or alarm setpoints being determined due to the

monitor being inoperable. Even though the Unit 2 RECW radiation monitor was listed as "Out of Service", the ST was written such that the performance of the ST, which could result in alarm setpoints not being determined due to monitor inoperability, would be recorded as a full completion of the ST in the ST performance tracking system (Surveillance Test and Records System (STARS)). (This point will become important later.)

On July 19, 1989, the Unit 2 I&C group contacted the Unit 1 I&C group for a background radiation measurement for the Unit 2 RECW radiation monitor for use in performance of ST-2-013-600-2, "Radiation Monitoring - Reactor Enclosure Cooling Water System Monitor Functional Test (RISH-13-2K606)", and mistakenly received the previous period's Unit 2 RECW background radiation measurement supplied to I&C by Chemistry. The Unit 2 I&C group incorrectly used this number to establish HI and HI-HI alarm setpoints and performed ST-2-13-600-2 with the non-conservative setpoints. This resulted in alarm setpoints greater than the TS limit of $\leq$ 3 times the background radiation level.

On July 20, 1989, the system engineer cancelled the MRF written to correct the erratic indication on the radiation monitor since the identified problem no longer existed and could not be reproduced during troubleshooting. After review to ensure no outstanding MRFs or STs were pending on the Unit 2 RECW system, the system engineer recommended to Shift Supervision that the Unit 2 RECW radiation monitor be declared operable on July 21, 1989. Shift Supervision declared the Unit 2 RECW radiation monitor operable on July 21, 1989, at 1100 hours. Chemistry was then instructed to stop the TS required sampling for the Unit 2 RECW radiation monitor.

On July 25, 1989, at 1650 hours, Chemistry contacted I&C personnel to determine why the Unit 2 RECW radiation monitor was declared operable since valid alarm setpoints had not been established by ST-5-026-876-0 due to the monitor being inoperable at the time of its performance. At 1745 hours, Chemistry again began sampling required by the TS ACTION since it was recognized that the radiation monitor should not have been declared operable. At approximately 1900 hours, I&C personnel determined that the mistaken use of the previous background measurement resulted in the alarm setpoints in excess of the TS limit and, at 1930 hours, Shift Supervision declared the Unit 2 RECW radiation monitor inoperable.

Between July 21 and July 25, 1989, the Unit 2 RECW radiation monitor did not have the proper alarm setpoints as required by

TS. The monitor did not meet the requirements of TS section 3.3.7.1 but the ACTION of sampling was not taken in the required time. This resulted in a condition prohibited by TS and is reportable in accordance with 10 CFR 50.73(a)(2)(c)(B).

Consequences of the Event:

The consequences of this event were minimal and there was no release of radiation as a result of this event. The RECW radiation monitor acts as a form of early leak detection to prevent release of contamination from the closed loop cooling system. In Operational Condition 4 (Cold Shutdown), the operating pressure of the RECW system is greater than the pressure of the potentially contaminated systems cooled by RECW. A leak in the RECW heat exchanger (EIIS:HX) for the system cooled by RECW would be from RECW into the other system rather than out from the other system into RECW. In addition, the activity levels in the systems cooled by the RECW system were very low since the event occurred prior to Unit 2 initial criticality. Therefore the likelihood of RECW becoming contaminated was extremely remote.

In the unlikely event that contamination of RECW had occurred, and a leak had occurred into the SW System, the Unit 2 SW radiation monitor was operable and available to detect any contamination coming from the closed loop cooling system.

Cause of the Event:

The cause of this event was a personnel error of communication within the I&C group, an additional causal factors contributing to the event were a procedural deficiency in the format of Chemistry procedure ST-5-026-876-0, and the existance of a transitional Unit 2 Startup I&C group separate from Unit 1 I&C group.

The Unit 2 ST-2-013-600-2 requires that the performer "...Obtain from I&C Supervision the most recent average background radiation reading for Reactor Enclosure Cooling Water System Radiation Monitor RISH-13-2K606 ... (and) Have I&C Supervision initial ..." In this instance, a phone call was made by a member of the Unit 2

I&C ST group to the Unit 1 I&C group requesting the most recent background reading and the number was given verbally as "information only". This reading was not meant to be used for establishing the alarm setpoints. The number was inappropriately entered by the Unit 2 I&C ST group individual on the ST and Unit 2 I&C Supervision initialed the entry due to unfamiliarity of Chemistry setpoint data collection process and a breakdown in communication between the two I&C groups.

In addition, a procedural deficiency existed in the structure of ST-5-026-876-0 in that the same procedure was used to establish alarm and background setpoints for Unit 1 and Unit 2 SW and RECW radiation monitors. While the Unit 2 RECW radiation monitor was noted on the ST as "Out of Service", the ST was written such that a partial performance of this ST would be recorded as a full pass in STARS, thereby leading the system engineer to believe that the Unit 2 RECW radiation monitor had passed its ST for establishing setpoints.

Corrective Actions:

In anticipation of the Unit 2 RECW radiation monitor being declared inoperable, Chemistry began the TS required sampling on July 25, 1989, at 1745 hours, and continued after the determination of inoperability at 1930 hours. The I&C group performed ST-2-013-600-2 with the proper background radiation measurement on July 15, 1989. On August 4, 1989, at 1000 hours, the system engineer verified that no outstanding MRFs or STs existed and assured by Chemistry personnel that proper alarm setpoints were set. Shift supervision was notified and the Unit 2 RECW radiation monitor was then declared operable.

Actions Taken to Prevent Recurrence:

The I&C personnel involved have been counseled not to transmit setpoint data by telephone. All future setpoints will be obtained in person. ST-5-026-876-0 will be revised into 4 separate's STs, one for each radiation monitor, prior to September 30, 1989. Upon review of all Chemistry liquid monitor setpoint STs, a similar problem was discovered on the Residual Heat Removal Service Water System ST. This ST will be revised

similarly prior to September 30, 1989. A review of all other Chemistry radiation monitor STs is underway and if any similar procedure deficiencies are found they will be corrected by procedural revision.

Further, the Unit 2 I&C group will be incorporated into the Unit 1 I&C group. This will ensure that the Unit 1 and Unit 2 I&C STs are implemented with one program and will reduce the possibility of communication related errors.

Previous Similar Occurrences:

The following LGS Unit 1 LERS reported conditions prohibited by TS due to personnel error: 84-044, 85-006, 014, 069, 078, 096, 86-016, 032, 042, 87-036, 039, 043, 049, 053, 054, 88-01 and 89-15. No previous similar occurrences have been experienced on LGS Unit 2.

Tracking Codes: A-Personnel Error