

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

P. O. BOX A

SANATOGA, PENNSYLVANIA 19464

(215) 327-1200, EXT. 3000

GRAHAM M. LEITCH  
VICE PRESIDENT  
LIMERICK GENERATING STATION

March 11, 1991

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: Limerick Generating Station Monthly Operating Report For  
Units 1 and 2

Enclosed are the monthly operating reports for Limerick Units  
1 and 2 for the month of February, 1991 forwarded pursuant to  
Technical Specification 6.9.1.6.

  
Very truly yours,

KWM/dwc

Enclosure

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

Docket No. #50-352  
Attachment to Monthly  
Operating Report for  
February 1991

LIMERICK GENERATING STATION  
UNIT 1  
FEBRUARY 1 THROUGH FEBRUARY 28, 1991

I. NARRATIVE SUMMARY OF OPERATING EXPERIENCES

Limerick Unit 1 began the month of February at a nominal 100% of rated thermal power. There were four (4) brief power reductions during the month. On February 1, reactor power was reduced to 84% to perform main turbine stop and control valve, and control rod testing. On February 8, 15, and 22 reactor power was reduced to approximately 85% to perform main turbine stop and control valve tests. Unit 1 ended the month at 100% of rated thermal power.

II. Challenges to Main Steam Safety Relief Valves

There were no challenges to the Main Steam Relief Valves during the month of February.

AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50 - 352  
 UNIT LIMERICK UNIT 1  
 DATE MARCH 5, 1991  
 COMPANY PHILADELPHIA ELECTRIC COMPANY  
 KARL MECK  
 REPORTS SUPERVISOR  
 BUSINESS UNIT  
 LIMERICK GENERATING STATION  
 TELEPHONE (215) 327-1200 EXTENSION 3320

MONTH FEBRUARY 1991

DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)	DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)
1	1035	17	1045
2	1028	18	1044
3	1043	19	1040
4	1039	20	1034
5	1051	21	1045
6	1034	22	1029
7	1044	23	1029
8	1029	24	1044
9	1045	25	1045
10	1042	26	1044
11	1043	27	1043
12	1046	28	1041
13	1047		
14	1045		
15	1025		
16	1037		

OPERATING DATA REPORT

3913035920

DOCKET NO. 50 - 352

DATE MARCH 5, 1991

COMPLETED BY PHILADELPHIA ELECTRIC COMPANY

KARL MECK  
REPORTS SUPERVISOR  
BUSINESS UNIT  
LIMERICK GENERATING STATION  
TELEPHONE (215) 327-1200 EXTENSION 3320

OPERATING STATUS

1. UNIT NAME: LIMERICK UNIT 1  
2. REPORTING PERIOD: FEBRUARY, 1991  
3. LICENSED THERMAL POWER(MWT): 3293  
4. NAMEPLATE RATING (GROSS MWE): 1138  
5. DESIGN ELECTRICAL RATING (NET MWE): 1055  
6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE): 1092  
7. MAXIMUM DEPENDABLE CAPACITY (NET MWE): 1055

NOTES: THERE WERE NO LOAD  
REDUCTIONS GREATER THAN  
20% THIS MONTH.

8. IF CHANGES OCCUR IN CAPACITY RATINGS (ITEMS NUMBER 3 THROUGH 7) SINCE LAST REPORT, GIVE REASONS:  
9. POWER LEVEL TO WHICH RESTRICTED, IF ANY (NET MWE):  
10. REASONS FOR RESTRICTIONS, IF ANY:

	THIS MONTH	VR-TO-DATE	CUMULATIVE
11. HOURS IN REPORTING PERIOD	672	1,416	44,496
12. NUMBER OF HOURS REACTOR WAS CRITICAL	672.0	1,416.0	34,547.6
13. REACTOR RESERVE SHUTDOWN HOURS	0.0	0.0	0.0
14. HOURS GENERATOR ON-LINE	672.0	1,412.0	33,809.0
15. UNIT RESERVE SHUTDOWN HOURS	0.0	0.0	0.0
16. GROSS THERMAL ENERGY GENERATED (MWH)	2,203,639	4,523,486	100,605,618
17. GROSS ELECTRICAL ENERGY GENERATED (MWH)	724,490	1,486,250	32,532,150
18. NET ELECTRICAL ENERGY GENERATED (MWH)	698,763	1,432,537	31,110,144

DATE MARCH 5, 1981

	THIS MONTH	VR-TO-DATE	CUMULATIVE
19. UNIT SERVICE FACTOR	100.0	99.7	76.0
20. UNIT AVAILABILITY FACTOR	100.0	99.7	76.0
21. UNIT CAPACITY FACTOR (USING MDC NET)	98.6	95.9	66.3
22. UNIT CAPACITY FACTOR (USING DER NET)	98.6	95.9	66.3
23. UNIT FORCED OUTAGE RATE	0.0	0.3	3.4
24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH):			

25. IF SHUTDOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP:

26. UNITS IN TEST STATUS (PRIOR TO COMMERCIAL OPERATION):	FORECAST	ACHIEVED
INITIAL CRITICALITY	12/19/84	12/22/84
INITIAL ELECTRICITY	MID APRIL 85	4/13/85
COMMERCIAL OPERATION	1ST QTR 86	2/01/86

## UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50 - 352

3913035920

UNIT NAME LIMERICK UNIT 1

DATE MARCH 5, 1991

REPORT MONTH FEBRUARY, 1991

COMPLETED BY PHILADELPHIA ELECTRIC COMPANY

KARL MECK  
 REPORTS SUPERVISOR  
 BUSINESS UNIT  
 LIMERICK GENERATING STATION  
 TELEPHONE (215) 327-1200 EXTENSION 3320

NO.	DATE	TYPE (1)	DURATION (HOURS)	REASON (2)	METHOD OF SHUTTING DOWN REACTOR (3)	LICENSEE EVENT REPORT #	SYSTEM CODE (4)	COMPONENT CODE (5)	CAUSE AND CORRECTIVE ACTION TO PREVENT RECURRENCE
9	910201	S	000.0	B	4	N/A	CC	VALVEX	LOAD WAS REDUCED 16% TO PERFORM MAIN TURBINE STOP AND CONTROL VALVE TESTS, AND CONTROL ROD TESTING.
10	910208	S	000.0	B	4	N/A	CC	VALVEX	LOAD WAS REDUCED 15% TO PERFORM MAIN TURBINE CONTROL AND STOP VALVE TESTS.
11	910215	S	000.0	B	4	N/A	CC	VALVEX	LOAD WAS REDUCED 15% TO PERFORM MAIN TURBINE STOP AND CONTROL VALVE TESTS.
12	910222	S	000.0	B	4	N/A	CC	VALVEX	LOAD WAS REDUCED 14% TO PERFORM MAIN TURBINE STOP AND CONTROL VALVE TESTS.

(1)

F - FORCED  
 S - SCHEDULED

(2)

REASON  
 A - EQUIPMENT FAILURE (EXPLAIN)  
 B - MAINTENANCE OR TEST  
 C - REFUELING  
 D - REGULATORY RESTRICTION  
 E - OPERATOR TRAINING + LICENSE EXAMINATION  
 F - ADMINISTRATIVE  
 G - OPERATIONAL ERROR (EXPLAIN)  
 H - OTHER (EXPLAIN)

(3)

METHOD  
 1 - MANUAL  
 2 - MANUAL SCRAM.  
 3 - AUTOMATIC SCRAM.  
 4 - OTHER (EXPLAIN)

(4)

EXHIBIT G - INSTRUCTIONS  
 FOR PREPARATION OF DATA  
 ENTRY SHEETS FOR LICENSEE  
 EVENT REPORT (LER)  
 FILE (NUREG-0161)

(5)

EXHIBIT I - SAME SOURCE

Docket No. #50-353  
Attachment to Monthly  
Operating Report for  
February 1991

LIMERICK GENERATING STATION  
UNIT 2  
FEBRUARY 1 THROUGH FEBRUARY 28, 1991

I. NARRATIVE SUMMARY OF OPERATING EXPERIENCES

Limerick Unit 2 began the month of February at 97% of rated thermal power. On February 2, reactor power was reduced to 86% and a control rod pattern adjustment was made in order to return to 100% power. On February 3, reactor power was reduced to 71% when instrument air low pressure to the feedwater heater control valves occurred. Power was returned to 100% by early morning on February 4 following correction to the instrument air problem. On February 5, reactor power was reduced to 90% to perform a control rod pattern adjustment. On February 13, reactor power was reduced to 95% due to increased offgas hydrogen levels. On February 15, reactor power was reduced to 85% to perform main turbine control valve tests and a control rod pattern adjustment. On February 17, reactor power was reduced to 95% due to reactor feed pump control problems. On February 20, reactor power was reduced to 14% and the main turbine generator taken off-line at 1912 hours to perform a repair to a previously identified electro-hydraulic control (EHC) fluid leak at the #2 main turbine control valve servo. Reactor power was maintained at 14% during the repair with steam bypassed to the condenser. Unit 2 main turbine generator was synchronized to the grid at 0134 hours and returned to 100% reactor power on February 21. On February 22, reactor power was reduced to 95% to perform a control rod pattern adjustment. Unit 2 ended the month at 100% of rated thermal power.

Operational events that occurred during the month of February included:

- On February 3, following the removal from service of the '2A' Instrument Air compressor dryer package, the Control Room received several feedwater heater level and Instrument Air header low pressure alarms. The Auxiliary Plant Operator was instructed to restore the dryer package. Following the restoration of the dryer package, Instrument Air header pressure returned to normal. Further investigation determined that the cause of the event was failure of a valve operator at the inlet to the in-service '2B' instrument air dryer tower. The valve operator was subsequently repaired.
- On February 13, reactor power was decreased to approximately 95% of rated thermal power when the offgas system hydrogen concentration levels reached 3.6% due to recombiner preheater problems. Following the power reduction, hydrogen concentration levels decreased to 3.2%. Following investigation, induced air in-leakage was increased to dilute the hydrogen concentration. Following the increase in air in-leakage, the hydrogen concentration levels decreased to approximately 2.2%. Reactor power was subsequently returned to 100% on February 14.
- On February 17, the '2C' Reactor Feed Pump minimum flow valve failed open causing reactor power to decrease by 50 MWe. Reactor level decreased to +27 inches before the '2A' and '2B' RFP's compensated and restored level to +35 inches. The manual minimum flow isolation valve was closed to prevent flow to the Main Condenser. The valve was found to have failed open due to loss of power to the local flow controller. On February 19, the System Engineers found two defective cards in the controller. The cards were replaced and the valve was verified to operate properly. The manual valve was subsequently reopened.

Docket No. #50-353  
Attachment to Monthly  
Operating Report for  
February 1991

II. CHALLENGES TO MAIN STEAM SAFETY RELIEF VALVES

There were no challenges to the Main Steam Safety Relief Valves during the month of February.



AVERAGE DAILY UNIT POWER LEVEL

DOCKET NO. 50 - 353  
UNIT LIMERICK UNIT 2  
DATE MARCH 5, 1991  
COMPANY PHILADELPHIA ELECTRIC COMPANY  
KARL MECK  
REPORTS SUPERVISOR  
BUSINESS UNIT  
LIMERICK GENERATING STATION  
TELEPHONE (215) 327-1200 EXTENSION 3320

MONTH FEBRUARY 1991

DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)	DAY	AVERAGE DAILY POWER LEVEL (MWE-NET)
1	1032	17	1056
2	1043	18	1055
3	1010	19	1050
4	1037	20	778
5	1062	21	726
6	1050	22	1054
7	1059	23	1051
8	1057	24	1056
9	1062	25	1058
10	1057	26	1059
11	1057	27	1056
12	1060	28	1049
13	1056		
14	1045		
15	1052		
16	1062		

## OPERATING DATA REPORT

DOCKET NO. 50 - 353

DATE MARCH 5, 1991

COMPLETED BY PHILADELPHIA ELECTRIC COMPANY

KARL MECK  
 REPORTS SUPERVISOR  
 BUSINESS UNIT  
 LIMERICK GENERATING STATION  
 TELEPHONE (215) 327-1200 EXTENSION 3320

## OPERATING STATUS

1. UNIT NAME: LIMERICK UNIT 2  
 2. REPORTING PERIOD: FEBRUARY, 1991  
 3. LICENSED THERMAL POWER(MWT): 3293  
 4. NAMEPLATE RATING (GROSS MWE): 1138  
 5. DESIGN ELECTRICAL RATING (NET MWE): 1055  
 6. MAXIMUM DEPENDABLE CAPACITY (GROSS MWE): 1092  
 7. MAXIMUM DEPENDABLE CAPACITY (NET MWE): 1055

NOTES: MAIN TURBINE-GENERATOR  
 WAS TRIPPED DUE TO AN EHC  
 PIPING LEAK, AND THERE  
 WAS ONE OTHER LOAD  
 REDUCTION GREATER THAN  
 20%.

8. IF CHANGES OCCUR IN CAPACITY RATINGS (ITEMS NUMBER 3 THROUGH 7) SINCE LAST REPORT, GIVE REASONS:  
 9. POWER LEVEL TO WHICH RESTRICTED, IF ANY (NET MWE):  
 10. REASONS FOR RESTRICTIONS, IF ANY:

	THIS MONTH	VR-TO-DATE	CUMULATIVE
11. HOURS IN REPORTING PERIOD	672	1,416	10,008
12. NUMBER OF HOURS REACTOR WAS CRITICAL	672.0	1,416.0	8,975.3
13. REACTOR RESERVE SHUTDOWN HOURS	0.0	0.0	0.0
14. HOURS GENERATOR ON-LINE	665.6	1,400.3	8,577.9
15. UNIT RESERVE SHUTDOWN HOURS	0.0	0.0	0.0
16. GROSS THERMAL ENERGY GENERATED (MWH)	2,160,343	4,559,767	27,417,557
17. GROSS ELECTRICAL ENERGY GENERATED (MWH)	715,610	1,509,080	9,032,096
18. NET ELECTRICAL ENERGY GENERATED (MWH)	692,368	1,460,352	8,692,948

	DATE MARCH 5, 1991	
	THIS MONTH	VR-TO-DATE
19. UNIT SERVICE FACTOR	99.0	98.9
20. UNIT AVAILABILITY FACTOR	99.0	98.9
21. UNIT CAPACITY FACTOR (USING MDC NET)	97.7	97.8
22. UNIT CAPACITY FACTOR (USING DER NET)	97.7	97.8
23. UNIT FORCED OUTAGE RATE	1.0	1.1
24. SHUTDOWNS SCHEDULED OVER NEXT 6 MONTHS (TYPE, DATE, AND DURATION OF EACH):		
REFUELING OUTAGE; MARCH 22, 1991; 75 DAYS		

CUMULATIVE

85.7

85.7

82.3

82.3

9.0

25. IF SHUTDOWN AT END OF REPORT PERIOD, ESTIMATED DATE OF STARTUP:

26. UNITS IN TEST STATUS (PRIOR TO COMMERCIAL OPERATION):	FORECAST	ACHIEVED
INITIAL CRITICALITY	08/12/89	08/12/89
INITIAL ELECTRICITY	09/01/89	09/01/89
COMMERCIAL OPERATION	02/01/90	01/08/90

UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50 - 353

UNIT NAME LIMERICK UNIT 2

DATE MARCH 5, 1991

REPORT MONTH FEBRUARY, 1991

COMPLETED BY PHILADELPHIA ELECTRIC COMPANY

KARL WECK  
REPORTS SUPERVISOR  
BUSINESS UNIT  
LIMERICK GENERATING STATION  
TELEPHONE (215) 327-1200 EXTENSION 3320

NO.	DATE	TYPE (1)	DURATION (HOURS) (2)	REASON (3)	METHOD OF SHUTTING DOWN REACTOR (3)	LICENSEE EVENT REPORT #	SYSTEM CODE (4)	COMPONENT CODE (5)	CAUSE AND CORRECTIVE ACTION TO PREVENT RECURRENT
6	910202	S	000.0	F	4	N/A	RB	CONROD	LOAD WAS REDUCED 14% TO PERFORM A CONTROL ROD PATTERN ADJUSTMENT.
7	910203	F	000.0	A	4	N/A	CH	INSTRU	LOAD WAS REDUCED 29% DUE TO INSTRUMENT AIR LOW PRESSURE TO THE FEEDWATER HEATER CONTROL VALVES.
8	910205	S	000.0	F	4	N/A	RB	CONROD	LOAD WAS REDUCED 10% TO PERFORM A CONTROL ROD PATTERN ADJUSTMENT.
9	910213	F	000.0	F	4	N/A	MC	RECOMB	LOAD WAS REDUCED 5% DUE TO HIGH HYDROGEN LEVELS IN OFF-GAS.
10	910215	S	000.0	B	4	N/A	CC	VALVE	LOAD WAS REDUCED 15% TO PERFORM MAIN TURBINE CONTROL VALVE TESTING AND A CONTROL ROD PATTERN ADJUSTMENT.
11	910217	F	000.0	A	4	N/A	CH	INSTRU	LOAD WAS REDUCED 5% DUE TO REACTOR FEED PUMP CONTROL PROBLEMS.
12	910220	F	006.4	A	4	N/A	HA	PIPEXX	LOAD WAS REDUCED 86% THE MAIN TURBINE TRIPPED AND THE REACTOR

- (1)

F - FORCED  
S - SCHEDULED
- (2)

REASON  
A - EQUIPMENT FAILURE (EXPLAIN)  
B - MAINTENANCE OR TEST  
C - REFUELING  
D - REGULATOR RESTRICTION  
E - OPERATOR TRAINING + LICENSE EXAMINATION  
F - ADMINISTRATIVE  
G - OPERATIONAL ERROR (EXPLAIN)  
H - OTHER (EXPLAIN)
- (3)

METHOD  
1 - MANUAL  
2 - MANUAL SCRAM.  
3 - AUTOMATIC SCRAM.  
4 - OTHER (EXPLAIN)
- (4)

EXHIBIT G - INSTRUCTIONS  
FOR PREPARATION OF DATA  
ENTRY SHEETS FOR LICENSEE  
EVENT REPORT (LER)  
FILE (NUREG-0161)
- (5)

EXHIBIT I - SAME SOURCE

## UNIT SHUTDOWNS AND POWER REDUCTIONS

DOCKET NO. 50 - 353

3913035920

UNIT NAME LIMERICK UNIT 2

DATE MARCH 5, 1991

REPORT MONTH FEBRUARY, 1991

COMPLETED BY PHILADELPHIA ELECTRIC COMPANY

KARL MECK

REPORTS SUPERVISOR

BUSINESS UNIT

LIMERICK GENERATING STATION

TELEPHONE (215) 327-1200 EXTENSION 3320

NO.	DATE	TYPE (1)	DURATION (HOURS)	REASON (2)	METHOD OF SHUTTING DOWN REACTOR (3)	LICENSEE EVENT REPORT #	SYSTEM CODE (4)	COMPONENT CODE (5)	CAUSE AND CORRECTIVE ACTION TO PREVENT RECURRENCE
13	910222	S	000.0 ----- 6.4	F	4	N/A	RB	CONROD	REMAINED AT 14% IN BYPASS DUE TO AN EHC LEAK.  LOAD WAS REDUCED 5% TO PERFORM A CONTROL ROD PATTERN ADJUSTMENT.

(1)

F - FORCED  
S - SCHEDULED

(2)

## REASON

A - EQUIPMENT FAILURE (EXPLAIN)  
 B - MAINTENANCE OR TEST  
 C - REFUELING  
 D - REGULATORY RESTRICTION  
 E - OPERATOR TRAINING + LICENSE EXAMINATION  
 F - ADMINISTRATIVE  
 G - OPERATIONAL ERROR (EXPLAIN)  
 H - OTHER (EXPLAIN)

(3)

## METHOD

1 - MANUAL  
 2 - MANUAL SCRAM.  
 3 - AUTOMATIC SCRAM.  
 4 - OTHER (EXPLAIN)

(4)

EXHIBIT G - INSTRUCTIONS  
 FOR PREPARATION OF DATA  
 ENTRY SHEETS FOR LICENSEE  
 EVENT REPORT (LER)  
 FILE (NUREG-0161)

(5)

EXHIBIT I - SAME SOURCE