NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Limerick Generating Station - Unit 1	0 5 0 0 0 3 5 2	1 OF 4

TITLE (4)

Operation of Facility in Excess of Licensed Reactor Power Level

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	3 0	8 6	8 6	0 1 0	0 0	0 3	0 3	8 6		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): 1

POWER LEVEL (10): 1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

☐ 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)(vii)	☒ OTHER (Specify in Abstract below and in Text, NRC Form 366A) License Condition
☐ 20.405(a)(1)(iii)	☐ 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 (AREA CODE)
John C. Nagle, Senior Engineer, Licensing Section	2 1 5 8 4 1 - 5 1 8 4

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)

☐ YES (If yes, complete EXPECTED SUBMISSION DATE) ☒ NO

EXPECTED SUBMISSION DATE (15): MONTH DAY YEAR

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

Abstract: 86-010

On January 29, 1986 during a review of the Startup Test Program results, the permanent feedwater flow transmitters were found to have been incorrectly calibrated. It was determined that operation of the facility with this condition did not comply with License Condition 2.C.(1), which states "The licensee is authorized to operate the facility at reactor core power levels not in excess of 3293 megawatts thermal..." The error in the calibration, which was approximately one percent of calibrated range, caused an approximate 0.6 percent error in the Process Computer's calculated value of reactor power. Contrary to the Process Computer indications, reactor power was determined to have been in excess of 3293 megawatts thermal for a total of 138 hours between December 26, 1985 and January 29, 1986.

As soon as the error was suspected reactor power was limited to 40 megawatts thermal less than the license limit until the problem was understood and the feedwater flow transmitters recalibrated. The Process Computer algorithms were examined and no adjustments were necessary.

This LER is being submitted pursuant to License Condition 2F, which requires submittal of a follow-up report after initial notification.

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

Unit Conditions Prior to the Event:

Mode 1 (Power Operation)
Reactor Power 99.6%
100 Hour Warranty Run in Progress

Description of the Event:

On January 29, 1986, during a review of Startup Test Program (STP) test results, a discrepancy was noted between the reactor power levels calculated by the Process Computer and those determined by the STP procedures. Further investigation identified that the discrepancy was due to differences between the feedwater flow measurement data utilized by the Process Computer and the STP procedure. The Process Computer input data is obtained from permanent feedwater flow transmitters while the STP procedure utilized data from temporary transmitters. Reactor operations and power level determination was based on indicated power levels calculated by the Process Computer.

The investigation into the differences in calculated power determined that the permanent feedwater flow transmitters were incorrectly calibrated. On January 30, 1986, the permanent feedwater flow transmitters were recalibrated and the discrepancy was confirmed. The Process Computer indicated reactor power levels prior to and after recalibration were 3259 and 3280 megawatts thermal, respectively. The incorrect calibration of the feedwater flow transmitters resulted in an approximate 0.6 percent discrepancy between the indicated and corrected reactor power levels.

Records of indicated reactor power levels were reviewed and it was determined that the reactor was initially operated at approximately 100% power starting on December 26, 1985. The indicated power levels were increased by the 0.6% discrepancy and it was determined that the reactor was operated in excess of 3293 megawatts thermal power for 138 hours between December 26, 1985 and January 29, 1986. The average corrected reactor power for the combined 138 hours was 10.8 MWt above the rated power of 3293 MWt (0.33 percent) and the highest reactor power was 3330 MWt (101.1 percent rated power).

Operation of the facility in excess of 100 percent rated power did not comply with License Condition 2.C.(1), which states

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

"The licensee is authorized to operate the facility at reactor core power levels not in excess of 3293 megawatts thermal..."

Consequences of the Event:

The possible adverse consequences of this event were considered. All transient safety evaluations in the Final Safety Analysis Report (FSAR) are conservatively performed for 104.3 percent of 3293 MWt power conditions. Therefore, adequate transient protection was present. The Loss of Coolant Accident (LOCA) analyses in the FSAR extend to 102 percent of 3293 MWt. Therefore, the LOCA evaluation bounded the operation at 101.1 percent power.

Cause of the Event:

The error in the power calculated by the Process Computer was the result of improper calibration of the permanent feedwater flow transmitters which are inputs to the Process Computer. The flow transmitters were not properly calibrated due to the use of incorrect information for full scale differential pressure. The error in calibration was approximately one percent of the calibrated range.

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

Corrective Actions:

On January 29, 1986 reactor power was reduced by 40 megawatts thermal and administratively restricted to 3253, as indicated by the Process Computer. On January 30, the feedwater flow transmitters were recalibrated and reactor power was established at 100 percent. An examination of the Process Computer software algorithms used to calculate feedwater mass flow rate was reviewed and no adjustments to the feedwater flow coefficients were determined to be necessary.

Evaluation of the proper interpretation of License Condition 2.C.(1) is ongoing.

Previous Similar Occurrences:

None.

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March 3, 1986

Docket No. 50-352

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

SUBJECT: Licensee Event Report
Limerick Generating Station - Unit 1

This LER concerns non-compliance with License Condition 2.C.(1), dealing with maximum operating reactor power level.

Reference:	Docket No. 50-352
Report Number:	86-010
Revision Number:	00
Event Date:	January 30, 1986
Report Date:	March 3, 1986
Facility:	Limerick Generating Station P.O. Box A, Sanatoga, PA 19464

This LER is being submitted pursuant to License Condition 2F, requiring a follow-up report after initial notification, written in accordance with 10 CFR 50.73(b),(c) and (e).

Very truly yours,

W T Ullrich

W. T. Ullrich
Superintendent
Nuclear Generation Division

PBB:vdw

cc: Dr. Thomas E. Murley, Administrator, Region I, USNRC
E. M. Kelly, Senior Resident Site Inspector
See Attached Service List

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