

10CFR50.73

October 15, 2004

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Limerick Generating Station, Unit 1
Facility Operating License Nos. NPF-39
NRC Docket No. 50-352

Subject: LER 1-04-002, Period Of Operation That Exceeded
The License Maximum Power Level

This Licensee Event Report (LER) addresses a period of operation between 100% and 100.3% of rated thermal power due to the 1A feedwater flow transmitter being out-of-calibration. This resulted in a license violation regarding the maximum power level limit of 3458 megawatts thermal.

Report Number: 1-04-002
Revision: 00
Event Date: May 23, 2004
Discovered Date: September 15, 2004
Report Date: October 15, 2004

This LER is being submitted pursuant to the requirements of License Condition 2.F, which requires a 30-day written followup in accordance with the procedures described in 10CFR50.73(b), (c), and (e).

If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

Original signed by

Ron J. DeGregorio
Vice President - Limerick
Exelon Generation Company, LLC

cc: S. J. Collins, Administrator Region I, USNRC
S. L. Hansell, USNRC Senior Resident Inspector, LGS

SUMMARY OF EXELON NUCLEAR COMMITMENTS
LS-AA-117-1003 Rev.2

The following table identifies commitments made in this document. (Any other actions discussed in the submittal represent intended or planned actions. They are described to the NRC for the NRC's information and are not regulatory commitments.)

Commitment #1	Committed date (or "outage"): 12/31/04
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The thermal performance monitoring program will be enhanced to include a requirement for long-term trending of critical plant parameters.

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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TITLE (4)

Operation Exceeding License Maximum Power Level

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
05	23	2004	2004 - 002 - 00			10	15	2004	FACILITY NAME	DOCKET NUMBER
										05000
										05000
OPERATING MODE (9)		1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)							
POWER LEVEL (10)		100	20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
			20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)	50.73(a)(2)(x)
			20.2203(a)(1)			50.36(c)(1)(i)(A)			50.73(a)(2)(iv)(A)	73.71(a)(4)
			20.2203(a)(2)(i)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)	73.71(a)(5)
			20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)	x OTHER
			20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)	
			20.2203(a)(2)(v)			50.73(a)(2)(i)(B)			50.73(a)(2)(vii)	
			20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)	
			20.2203(a)(3)(i)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Keith S. Kemper, Manager – Regulatory Assurance	TELEPHONE NUMBER (Include Area Code) (610) 718-3400
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	SJ	FT	R369	Y					

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 15 single-spaced typewritten lines) (16)

The unit was discovered to be operating in violation of the Facility Operating License at approximately 100.3 percent of rated thermal power following identification of increasing trends in several balance-of-plant parameters. The trends started on May 23, 2004. Calculated thermal power decreased as the output of the transmitter decreased, which resulted in operators increasing power to maintain indicated power at 100 percent. The degraded transmitter was replaced to provide an accurate feedwater flow measurement input to the thermal power calculation.

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

Unit Conditions Prior to the Event

Unit 1 was in Operational Condition (OPCON) 1 (Power Operation) at approximately 100% power. There were no structures, systems or components out of service that contributed to this event.

Description of the Event

On September 15, 2004, at 16:00 hours, Engineering notified Operations that Unit 1 was potentially exceeding the Facility Operating License (FOL) maximum power level of 3458 megawatts thermal. This was based on an observation of increasing trends in feedwater temperature, condensate flow, main turbine steam flow, and turbine inlet pressure. Engineering initially estimated that thermal power was 100.4 percent of licensed thermal power. Operators subsequently reduced power to 99 percent of rated thermal power to provide margin.

Subsequent troubleshooting identified that the 1A feedwater (EIIS:SJ) flow transmitter (EIIS:FT) signal displayed on the Plant Monitoring System (PMS) computer was less than the signal to the digital feedwater control system. Further investigation identified that the transmitter was out-of-calibration and accounted for a non-conservative error in the thermal power calculation of approximately 0.3 percent rated thermal power. The transmitter was replaced and returned to service. The post maintenance test verified the transmitter input to the thermal power calculation was accurate. The 1B and 1C feedwater flow transmitter inputs into the thermal power calculation were verified to be within the calibration sheet allowable minimum and maximum limits. Unit 2 parameters were verified to be as expected for 100 percent thermal power operation.

The daily surveillance logs (ST-6-107-590-1 and ST-6-107-590-2) were previously revised to add once per shift monitoring that heat balance sensors are within expected ranges when thermal power is greater than or equal to 98 percent. Due to this event this section was revised to include monitoring of main turbine control valve (EIIS:V) position and main turbine inlet pressure, which are not used in the heat balance calculation. The steady

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state operations procedure (GP-5) was revised to include monitoring that main turbine total control valve position and main turbine inlet pressure are not exceeding the expected values at 100 percent core thermal power. Power was restored to 100 percent on September 20, 2004.

This event involved a condition that was prohibited by the plant's FOL Section 2.C.(1) Maximum Power Level. The FOL Section 2.F. requires that violations of FOL Section 2.C be reported by ENS within 24 hours with written followup within 30 days in accordance with the procedures described in 10CFR50.73(b), (c), and (e). The ENS notification (EN# 41043) was completed on September 16, 2004 at 12:17 hours. This LER is being submitted pursuant to the requirements of the Facility Operating License Section 2.F.

Analysis of the Event

There were no actual safety consequences associated with this event. The potential safety consequences of this event were minimal.

The investigation determined that the 1A feedwater flow transmitter output was less than the allowable minimum value specified on the calibration sheet. The minimum and maximum calibration limits are based on the 0.25 percent of full-scale accuracy requirement for the transmitter. The 1A feedwater flow transmitter output was found to be approximately 0.64 percent of full scale below the ideal output at normal operating conditions. Bench testing of the degraded transmitter is in progress.

The "A" feedwater flow instrument loop calibration was also checked and the loop/computer output was found to be within the loop's Lower Acceptance Limit of 0.57 percent of full scale at normal operating conditions. The Lower Acceptance Limit of 0.57 percent is based on the combined 0.25 percent of full-scale accuracy for the transmitter and other components in the loop that were 0.1 percent and 0.5 percent of full-scale accuracy.

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The Limerick licensing basis allows for uncertainty in calculation of thermal power. As described in the Limerick UFSAR section 4.4, the overall Unit 1 feedwater flow uncertainty as calculated is 0.81% of rated flow. The licensing basis overall feedwater flow uncertainty is 1.76 percent. A Limerick analysis determined that safety margins are adequate to support a 2.24 percent feedwater flow uncertainty. The licensing basis power uncertainty for U.S. BWRs is 2.0 percent as documented in GESTAR II (General Electric Standard Application for Reactor Fuel). Therefore, operation at 100.3 percent thermal power is bounded by the existing feedwater flow uncertainty analysis.

Cause of the Event

The cause of the overpower condition was time dependent degradation of the 1A feedwater flow transmitter output in a non-conservative direction.

Corrective Action Completed

The 1A feedwater flow transmitter was replaced and returned to service.

Main turbine control valve position and main turbine inlet pressure monitoring were added to the once per shift heat balance parameter checks in the daily surveillance logs. The steady state operations procedure was revised to monitor main turbine control valve position and main turbine inlet pressure when operating at full power.

The system engineering monitoring plans were revised to ensure appropriate points are monitored.

Corrective Action Planned

The thermal performance monitoring program will be enhanced to include a requirement for long-term trending of specific balance-of-plant parameters. This will be complete by 12/31/04.

A vendor-assisted evaluation is in progress to determine the cause of the time dependent degradation in the flow transmitter performance.

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

Previous Similar Occurrences

There were no previous occurrences of exceeding maximum license power level due to instrument failure.

Component data:

System: SJ (Feedwater System)
Component: FT (Flow Transmitter)
Manufacturer: R369 (Rosemount Nuclear Instruments Inc)
Model: 1151DP6E22B2