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)
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TITLE (4)

OPERATING ABOVE THE MAXIMUM POWER LEVEL SPECIFIED IN OPERATING LICENSE

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
1 1 2 0 8 7			8 7	—	0 6 9	—	0 0	0 1 0 5		8 8		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
1		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
1 0 0		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		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
W. E. Burns, Nuclear Licensing Manager - Vogtle	4 0 4 5 2 6 - 7 0 1 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)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X YES (If yes, complete EXPECTED SUBMISSION DATE)	NO		0 2	1 2	8 8

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

On September 9, 1987, during a review of the hand calculation and the Proteus computer calorimetric methods for determining reactor thermal power, a possible violation of license condition 2.C.(1) of the Plant Vogtle Unit 1 Facility Operating License No. NPF-68 was discovered. A review of plant operating data was undertaken. By November 20, 1987, investigation determined that the maximum licensed power level had been exceeded on numerous occasions. Subsequent review detected one instantaneous data point where the rated thermal power may have reached a maximum value of 3484 MWt (approximately 102.1% rated thermal power).

Corrective actions were taken to revise procedures such that calorimetrics for NI calibration are performed under more stabilized plant conditions and at increased frequencies.

This investigation is ongoing. A supplemental report is scheduled to be submitted on or about February 12, 1988.

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

A. REQUIREMENT FOR REPORT

The Plant Vogtle Unit 1, Facility Operating License No. NPF-68, section 2.H, requires the reporting of any violations of section 2.C. It appears that license condition 2.C.(1), Maximum Power Level, has been exceeded on a number of occasions. On one occasion the reactor power level may have reached 3484 MWt or approximately 102.1% rated thermal power.

B. UNIT STATUS AT TIME OF EVENT

The unit was in Mode 1 (power operation) at approximately 100% of rated thermal power (RTP), as indicated by nuclear instrumentation (NIs).

C. DESCRIPTION OF EVENT

In March, 1987, NRC correspondence was reviewed and discussions conducted with the NRC by Georgia Power Company (GPC) concerning achievement and control of maximum thermal power output. These documents and conversations lead to the establishment of the following criteria: "The average core thermal power level over any eight (8) hours shift shall not exceed 3411 MWt. It is permissible to briefly exceed 3411 MWt by as much as 2 percent for as long as fifteen (15) minutes (or 1 percent for 30 minutes, 1/2 percent for 1 hour); however, in no case should 102% (full steady state) power be exceeded." GPC believes that complying with this position ensured compliance with license condition 2.C.(1), " Maximum Power Level". A review has shown that Plant Vogtle Unit 1 appears to have exceeded the above criteria on the licensed RTP limit on numerous occasions with the maximum power level reaching approximately 102.1% on one occasion.

During August, 1987, Reactor Engineering, in response to a concern that Unit 1 was not generating the expected electrical output for given primary plant conditions, began a review of operations procedure 14030-1, "Power Range Calorimetric Channel Calibration". Computer logs of the Proteus computer point U1118, which provides reactor information for a given instant of time, were also examined closely as a means of determining the reactor thermal output. Procedure 14030-1 and computer point U1118 provide the hand calculated and computer calculated calorimetric, respectively. This review indicated a number of occurrences where the NI's indicated over 100% RTP which were not confirmed by the calorimetrics (hand and U1118).

NOTE: 14030-1 are calculations performed by reactor engineering utilizing the calorimetric procedure 14030-1 with data obtained from computer logs.

A review of the 14030-1 calculations (hand) indicated that RTP had been slightly exceeded on five (5) different dates for the noted instants of time as indicated in the following table:

DATE	TIME	MWt	% Power
6/27/87	2057	3474	1.018
6/28/87	2230	3426	1.004
7/17/87	2341	3434	1.007
7/18/87	0947	3433	1.007
7/26/87	1038	3435	1.007

A review of the computer calculated calorimetric (U1118) indicated that the RTP may have been exceeded on five (5) occasions as indicated in the following table:

DATES	TIME INTERVALS (hours)	DATA SOURCE	Maximum MWt	% Power
7/16/87	17 (approximate)	U1118	3451	1.012
7/17/87	11 (approximate)	U1118	3443	1.009
7/22/87	11 (approximate)	U1118	3470	1.017
7/24/87-7/25/87	37 (approximate)	U1118	3443	1.009
7/26/87-7/27/87	33 (approximate)	U1118	3445	1.01

These conditions were identified as possible deficiencies on September 10, 1987. Investigation was begun to determine if there was a violation of a license condition. This investigation was performed by Reactor Engineering and reviewed by the Plant Review Board (PRB) and, on November 20, 1987, determined to be reportable as a violation of the license condition.

After these possible deficiencies were first identified on September 10, 1987, there was a temporary change to Operations procedure, 14030-1, to change the acceptance criteria for comparison to the calorimetric. The criteria was changed from +2%,-2% to +2%,-0%. This was believed to be adequate action until the investigation was completed.

The results of the investigation were based upon the data obtained from hand calculated calorimetrics using procedure 14030-1 and the computer calculated calorimetric from the Proteus computer point U1118. Past computer logs were also examined to determine the time intervals involved. The investigation also continued to evaluate recent plant operating conditions.

The following table indicates additional dates and time intervals when the RTP was exceeded, and information source:

DATES	TIME INTERVALS (hours)	DATA SOURCE	MAX MWT*	CALC MWT	% Power
9/30/87	8 (approximate)	U1118 and 14030-1	3440	3431	1.009
10/6/87	8 (approximate)	U1118 and 14030-1	3442	3431	1.009
10/7/87	14 (approximate)	U1118 and 14030-1	3441	3439	1.009
11/4/87	7 (approximate)	U1118 and 14030-1	3484**	--	1.022

* From computer point U1118
**No calculated value available for comparison

During the last week in September, the feedwater flow transmitters that are used for calculations of 14030-1 were recalibrated. Prior to the calibration of the flow transmitters, a comparison was made of the thermal power from calculations using calorimetric procedure 14030-1 and the Proteus computer point U1118. This comparison demonstrated that the calculated value exceeded computer point U1118 by 20 MWT. Indicated feedwater flow was reduced by almost 1 percent which indicates that reactor thermal power may have been overestimated conservatively by almost 1 percent. After the calibration of the feedwater flow transmitters, a comparison was performed between the calculated calorimetric, Procedure 14030-1, and the Proteus computer point U1118. The results show the calculated value is 5 to 7 MWt less than the computer point U1118. No specific conclusions have been reached at this time as a result of this data.

D. CAUSE OF EVENT

The plant has been controlled based upon the indication of the NIs. This was considered to be the most conservative approach, since there had not been an engineering evaluation of the accuracy and acceptability of the Proteus output. The calibration of the NIs (once every twenty-four (24) hours per operations procedure 14030-1) is based upon the calorimetric results from either the computer calorimetric (point U1118) or, as was normally the case, the hand calculated calorimetric. This procedure had an acceptance

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

criteria of +2%,-2% in comparison with the calorimetric and required adjustment if the criteria were not met. Although the NI indication was used to control the reactor power at approximately 100%, the calorimetric data could indicate values as high as 102%. This was caused by the NIs being allowed to indicate below the calorimetric value. A software program was never established to control reactor power based upon a continuous MWt output value.

The difference of the NIs and the Proteus computer point U1118 will be discussed in the supplemental LER.

E. ANALYSIS OF EVENT

Reactor data demonstrated that none of the reactor trip limits were approached. Although the licensed power limit was exceeded, there was no event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly compromised plant safety. Further evaluations and investigations are being performed and the analysis for these events will be discussed in the supplemental LER.

F. CORRECTIVE ACTIONS

Corrective action taken include the following:

1. A temporary change to procedure 14030-1, "Power Range Calorimetric Channel Calibration", was issued to change the the Power Range Channels acceptance criteria to +2%, -0% of the calculated calorimetric power. This sets the NIs so they read the same or higher than the calculated calorimetric. Now, three (3) sets of data are taken and averaged for the calorimetric calculations.

2. A standing order was issued to perform 14030-1 every six (6) hours, to log NIs power every hour, and to operate utilizing the highest reading on a NIs channel. The continuous monitoring of reactor power ensures that the RTP of the license is not exceeded.

3. A revision to procedure 12004-1, "Power Operation", was issued. The change includes adding the following:

   a. At 98% RTP, perform a calorimetric as soon as power has stabilized.

b. Approximately ten (10) hours after reaching 98% RTP perform another calorimetric.

c. Reactor Engineering will review plant data and calorimetrics. With their concurrence, power can be raised to 99.99% power on the highest reading NI. Reactor Engineering will perform calorimetrics until the plant and the 24 hour calorimetric is stable to prevent exceeding 3411 MWt (the licensed power level).

d. If the plant receives a power transient and power is reduced to 98% or below, perform steps a. and b. prior to returning to 99.99% power.

4. In order to begin using U1118, reactor engineering has:

a. performed a verification evaluation to determine the validity of the Proteus computer point U1118.

b. established the Proteus computer display and/or logs to provide operations with data on an averaging basis.

c. revised operations procedure(s).

These actions (1-4) were completed by December 31, 1987.

When completed and implemented, it will preclude the necessity to perform actions 1, 2, and 3 above. However, in the event that the Proteus computer point U1118 cannot be utilized, either through computer failure or verification of an inaccuracy, procedure 12004-1 will provide the alternate means to monitor the reactor power.

G. ADDITIONAL INFORMATION

1. Failed Components
None

2. Similar Events
None

3. Energy Industry Identification System Code
Reactor Core - AC

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January 5,1988

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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PLANT VOGTLE - UNIT 1
NRC DOCKET 50-424
OPERATING LICENSE NPF-68
LICENSEE EVENT REPORT
OPERATING ABOVE THE MAXIMUM POWER
SPECIFIED IN THE OPERATING LICENSE

Gentlemen:

In accordance with the requirements of our facility operating license, Georgia Power Company is submitting a Licensee Event Report (LER) concerning events where the plant was operated marginally above the power level specified in our license. The licensee event report was submitted after the expiration of the thirty day reporting requirement due to the need for a detailed review of plant records over the recent holiday period. This delay was acknowledged by Region II personnel in a telephone conversation on December 21, 1987.

Sincerely,

L. T. Gucwa

PAH/lm

Enclosure: LER 50-424/1987-069

c: (see next page)

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Georgia Power

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