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August 2, 1991

ELV-03006
1074

Docket No. 50-424

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
LICENSEE EVENT REPORT
IMPROPER PRESSURIZER PRESSURE TRANSMITTER
CALIBRATION

In accordance with 10 CFR 50.73, Georgia Power Company hereby submits the enclosed report related to an event which was discovered on July 3, 1991.

Sincerely,

W. G. Hairston, III

WGH,III/NJS/gmb

Enclosure: LER 50-424/1991-005

xc: Georgia Power Company
Mr. C. K. McCoy
Mr. W. B. Shipman
Mr. P. D. Rushton
Mr. M. Sheibani
NORMS

U. S. Nuclear Regulatory Commission
Mr. S. D. Ebneter, Regional Administrator
Mr. D. S. Hood, Licensing Project Manager, NRR
Mr. B. R. Bonser, Senior Resident Inspector, Vogtle

IE22
1/1

NRC Form 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
VOGTLE ELECTRIC GENERATING - UNIT 1	0 5 0 0 0 4 2 4	1 OF 5

TITLE (4)
IMPROPER PRESSURIZER PRESSURE TRANSMITTER CALIBRATION

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQ NUM	REV	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 7	0 3	9 1	9 1	0 0 5	0 0	0 8	0 2	9 1	VEGP - UNIT 2	0 5 0 0 0 4 2 5
										0 5 0 0 0

OPERATING MODE (9): 1
POWER LEVEL: 1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (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)
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 AREA CODE	
MEHDI SHEIBANI, NUCLEAR SAFETY AND COMPLIANCE	404	826-3209

COMPLETE ONE LINE FOR EACH FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORT TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORT TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (16)

On 7-3-91 at 1618 CDT, conditions requiring entry into Technical Specification (TS) Limiting Condition for Operation (LCO) 3.0.3 occurred when it was discovered that a static head correction of approximately 25-psi had not been applied during the calibration of the pressurizer pressure transmitters for both units. This correction factor affected the high and low pressurizer pressure reactor trip setpoints, the low pressurizer pressure safety injection setpoint, and the initial pressure used in the safety analyses. Consequently, all four channels of pressurizer pressure instrumentation on each unit were declared inoperable, since a condition not provided for in the action requirements of TS 3.3.1 and 3.3.2 existed, and entry into LCO 3.0.3 was required. A Waiver of Compliance was obtained to allow time for transmitter recalibration. All channels for each unit were recalibrated, and TS 3.0.3 was exited at 0348 CDT on 7-4-91.

The root cause of this event was attributed to inadequate procedures. The static head correction factor had not been incorporated into the calibration procedures for these pressure transmitters.

A. REQUIREMENT FOR REPORT

This report is required per 10 CFR 50.73 (a)(2)(i) because a condition existed which was not provided for in the action requirements of Technical Specifications (TS) 3.3.1 and 3.3.2.

B. UNIT STATUS AT TIME OF EVENT

At the time of this event, both units were in Mode 1 (Power Operation) at 100% of rated thermal power. Other than that described herein, there was no inoperable equipment which contributed to the occurrence of this event.

C. DESCRIPTION OF EVENT

During a maintenance activity on one of the pressurizer pressure channels on Unit 2, it was discovered that a static head correction factor of approximately 25-psi had not been applied during the calibration of the pressure transmitter. An investigation showed this to be the case for all four pressurizer pressure channels on each unit.

This correction factor affected the high and low pressurizer pressure reactor trip setpoints, the low pressurizer pressure safety injection setpoint, and the initial pressure used in the safety analyses. After consultation with Westinghouse personnel, it was determined that the head correction should have been included and consequently, all four channels of pressurizer pressure instrumentation on each unit were declared inoperable, requiring entry into TS 3.0.3 at 1618 CDT on 7-3-91. In addition, TS 3.2.5 requires pressurizer pressure to be greater than or equal to 2224 psig in Mode 1. As a result of the failure to incorporate the static head correction factor, actual pressurizer pressure could have been as low as 2210 psig when indicated pressure was 2235 psig. In order to ensure compliance with TS 3.2.5, pressure was increased to an indicated value of approximately 2260 psig until the transmitters could be recalibrated.

A Waiver of Compliance was requested by GPC and granted by NRC Region II to allow sufficient time to complete the transmitter recalibrations. The Waiver of Compliance allowed an additional 18 hours to be applied to the TS 3.0.3 requirement for the units to be in Mode 3 (Hot Standby).

For both units, entry into TS 3.0.3 was made at 1618 CDT on 7-3-91. All four channels of pressurizer pressure instrumentation on each unit were recalibrated by 0225 CDT on 7-4-91, the action requirements of TS 3.0.3 were exited at 0348 CDT on 7-4-91. Therefore, both units were under the action requirements of TS 3.0.3 for a period of 11 hours and 30 minutes, which was well within the time allowed by the Waiver of Compliance.

D. CAUSE OF EVENT

The cause of the improper pressurizer pressure transmitter calibration was attributed to inadequate procedures. The static head correction factor had

not been incorporated into the calibration procedures for these pressure transmitters.

E. ANALYSIS OF EVENT

Georgia Power Company (GPC) in consultation with Westinghouse personnel reviewed the safety analyses to consider the effects of the absence of the 25-psi static head correction. This review resulted in the conclusion that all analyzed accident conditions, with the exception of small break loss of coolant accidents (LOCA), were bounded by existing analyses.

The 25-psig pressure bias affects the setpoints for the high and low pressurizer pressure reactor trip and the low pressurizer pressure safety injection functions (SI) as well as the initial pressure used in the safety analyses.

With regard to the high pressurizer pressure reactor trip function, Technical Specification (TS) section 2.2.1 requires the trip setpoint to be set at less than or equal to 2385 psig. The effect of the unaccounted for static head results in an effective setpoint for this trip function of approximately 2360 psig which is allowed by the TS and is conservative with respect to the safety analyses for all accident categories, since the setpoint would be reached when the actual pressure was lower than indicated.

The effect of this bias on the low pressurizer pressure reactor trip and safety injection setpoints has been reviewed to determine the impact on the accident analyses listed in Chapter 15 of the FSAR, including large break LOCA, small break LOCA, steam generator tube rupture (SGTR) and non-LOCA events (DNB related and others).

1. Large Break LOCA

During the large break LOCA event, no reactor trip is assumed to occur and safety injection is actuated based on high containment pressure. Reactor shutdown is achieved due to core voiding resulting in lack of neutron moderation. The pressurizer pressure instrument is not relied on during this accident to generate reactor trip or safety injection, therefore, the trip setpoints are inconsequential.

2. Small Break LOCA

During the small break LOCA event, the low pressurizer pressure reactor trip setpoint used in the safety analysis has 35 psig of margin available. Therefore, the reactor trip setpoint, taking into consideration the calibration bias, would be bounded by the existing safety analysis.

The safety injection setpoint used in the analysis of the small break LOCA is 1700 psig. The reactor protection setpoint for safety injection is 1870 psig which includes 170 psig for instrument uncertainty.

The additional error caused by lack of head correction could result in a non-conservative actuation 25-psig lower than that assumed in the safety analysis. However, the small break LOCA analysis assumes the worst case instrument error from containment environmental conditions which are normally associated with large break LOCA events. This uncertainty due to adverse containment conditions is approximately 65 psig. Since the safety injection setpoint is predicted to occur in less than 60 seconds after initiation of the small break LOCA, adverse containment conditions would not be expected to exist and the 25-psig calibration error would be easily absorbed within the uncertainty associated with the adverse containment conditions. Additionally, since the safety injection occurs so early during the accident there would be inadequate time for the instruments to heat up to temperatures where the errors would be significant. It is expected that had a small break LOCA event occurred, safety injection and reactor trip would have actually occurred well within the limits used in the analysis.

3. Steam Generator Tube Rupture

The critical parameter in the safety analysis for SGTR is the time between initiation of the SGTR and actuation of the safety injection. Had the pressurizer pressure instrument been calibrated correctly, pressure would drop from 2235 psig (normal operating pressure) to 1870 psig (safety injection setpoint) or a total of 465 psig. With the instrument calibrated with a 25-psig bias, indicated pressure would still have to drop by exactly the same amount (465 psig) to cause the actuation. Since the amount of pressure decrease and associated time to the actuation has not been affected by the calibration bias, there is no adverse consequence for this accident analysis.

4. Non-LOCA DNB Related Events

There are several events in this category described in the FSAR. Each was evaluated to determine the effects of this calibration bias. A minimum of 50 psig of margin exists for these DNB related events. This available margin is more than adequate to compensate for the 25-psig calibration bias, therefore, there is no impact on the analysis of these events.

5. Other non-LOCA Events

Several events in this category are described in the FSAR. These events were examined on a case-by-case basis. In each instance, it was found that the calibration bias resulted in a benefit or that the analysis results were insensitive to the pressure difference.

Since small break LOCA was the only accident scenario where adequate margin did not exist to accommodate the calibration bias, compensatory measures were taken while the Waiver of Compliance was in effect. Operators were instructed to manually initiate safety injection in the event that pressurizer pressure on any two channels reached 1900 psig following a reactor trip. This would assure that a low pressure safety injection would

occur at the pressure assumed in the analyses. Also, the pressurizer pressure master controllers for both units were adjusted to control at an indicated pressure of 2260 psig until the transmitters were recalibrated.

Based on these actions, the conservatism involved in the worst case error assumptions, and the low probability of a small break LOCA, there was no adverse effect on plant safety or on the health and safety of the public as a result of this event.

F. CORRECTIVE ACTIONS

1. All eight pressurizer pressure transmitters have been recalibrated.

2. Calibration procedures for the pressurizer pressure transmitters were revised on 7-3-91 to include the static head correction factor.

3. A broadness review of level, pressure and flow transmitters has been completed to verify that static head correction factors have been included as appropriate. This review included Reactor Protection System instruments, Engineered Safety Features instruments, other Technical Specification instruments, other safety related instruments, and some balance of plant instruments that are important to safety or performance (approximately 456 instruments for Unit 1 and 2 combined). Of these 456 instruments, 218 had no elevation difference between the tap and transmitter, and 172 had an elevation difference with the required head correction applied. The remaining 66 instruments (including the 8 pressurizer pressure instruments) had an elevation difference, but a head correction was not applied. Each of these was reviewed and it was determined that, with the exception of the pressurizer pressure channels, there are no cases where a head correction is necessary for Technical Specification operability considerations. However, as a result of this review, a further evaluation of these instruments will be made to determine if any corrections should be applied to enhance system performance. Any required calibration procedure revisions for the above instruments will be completed prior to the next calibration of the effected instruments.

4. A programmatic review of our procedure writer's guides has been initiated to determine if enhancements should be made concerning static head corrections. This review will be completed and appropriate revisions will be made by August 15, 1991.

G. ADDITIONAL INFORMATION

1. Failed Components Identification:
Pressurizer Pressure Transmitters

2. Previous Similar Events
None.

3. Energy Industry Identification System Codes:
Pressurizer Pressure Transmitters (PWR) - AB