NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
South Texas, Unit 1	05000 498	1 OF 05

TITLE (4) Technical Specification Violation Due to an RCS Delta Temperature/Average Temperature Loop Found Out-of-Tolerance

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
0 1	2 1	9 3	9 3	-- 0 0 6 --	0 0	0 2	1 9	9 3	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1
POWER LEVEL (10)	95

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (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
	20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
	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 (Include Area Code)
Charles Ayala - Supervising Licensing Engineer	(5 1 2) 9 7 2 - 8 6 2 8

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
	YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On January 21, 1993, at 1800 hours,Unit 1 was in Mode 1 at 95% power. An evaluation performed by plant personnel determined that from January 8, 1993 to January 12, 1993, Unit 1 was in a condition prohibited by Technical Specifications. The lead time constant of Reactor Coolant System Delta Temperature/Average Temperature loop RC-0430, was left outside the allowed tolerance of 5% of nominal value. This rendered the affected bistable inoperable. Per the Technical Specifications, this channel should have been placed in trip within six hours. The cause of this event was personnel error. The procedure governing the Delta Temperature/Average Temperature loop RC-0430 incorporated an incorrect graph for the Lead/Lag time constant. A contributing cause was an inadequate review of the procedure. Corrective actions include correcting the graph, recalibrating the RC-0430 temperature loop, recalibrating two additional affected loops, and reviewing this event with Maintenance Department procedure writers.

REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 – FACILITY NAME 8 TOTAL – DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

DESCRIPTION OF EVENT:

On January 21, 1993, at 1800 hours, Unit 1 was in Mode 1 at 95% power. An evaluation performed by plant personnel determined that from January 8, 1993 to January 12, 1993, Unit 1 was in a condition prohibited by Technical Specifications. On January 13, 1993, Unit 1 was in Mode 3 after recently completing a Technical Specification required shutdown due to the Main Steam line pressure channels being found out of tolerance (See Unit 1 LER 93-003). While reviewing calibration data associated with the time constants of the dynamic compensation circuits for the Reactor Protection System instrumentation, reviewers identified that the graph outlining lead time calculations for the 7300 Lead/Lag card (NLL) was incorrectly drawn. Calibrations of two Pressurizer pressure and one Reactor Coolant System Delta-Temperature/Average Temperature loops were affected.

A review of calibrations using the graph was performed to identify if errors had been induced in the setting of the time constants. In one case, for the lead constant of Reactor Coolant System Delta Temperature/Average Temperature loop RC-0430, the constant was left outside the allowed tolerance of 5% of nominal value. This rendered the affected bistable inoperable. A reportability review of this event was initiated on January 13, 1993 and on January 18, 1993, at 1800 hours, plant personnel determined that this event was reportable as a violation of the Technical Specifications. Technical Specifications requires that while in Modes 1 or 2, the inoperable channel must be placed in trip within six hours. This condition existed from January 8, 1993, when the time constants were set incorrectly until January 12, 1993, when Unit 1 entered Mode 3. Since the unit was operated in the required mode with the channel not in trip, this constituted an operation in a condition not allowed by Technical Specifications.

Since Unit 1 was in Mode 3 at the time of discovery of this condition, the Technical specification requirement to place it in trip was no longer required. On January 15, 1993, the Unit 1 RC-0430 Temperature loop was recalibrated prior to entry into Mode 2. Results were satisfactory.

DESCRIPTION OF EVENT: (Con't)

The graph had been redrawn when the separate Unit 1 and 2 pressurizer pressure calibrations procedures were combined into one common procedure. In addition to redrawing the graph, the graph was rotated 180 degrees. This mirror image was needed because calibration test equipment had changed. (The old strip recorder prints out from right to left and the new recorder prints from left to right.) While preparing the new graph, the lead time constant arrow was incorrectly drawn out to the peak and not to the decay of the wave form. The lead time should be a combination of lead and lag times. This error was not detected by the preparer, checker, or requestor. This graph was subsequently put into a total of 20 newly revised procedures to be consistent in the performance of the NLL card calibrations.

CAUSE OF EVENT:

The cause of this event was personnel error. The individual responsible for revising the Reactor Coolant System Delta-Temperature/Average Temperature loop procedure incorporated an incorrectly drawn graph. This graph was subsequently put into a total of 20 newly revised procedures to be consistent in the performance of the NLL card calibrations.

A contributing cause of this event was an inadequate review of the procedures during the various reviews. There were several reviews of this graph that could have discovered and corrected this error.

ANALYSIS OF EVENT:

With the RCS Delta Temperature/Average Temperature loop bistables inoperable, the RCS Delta Temperature/Average Temperature loop channel would have been required to be placed in the tripped condition within the next six hours per Technical Specification. Contrary to this, this was not noted for four days, and as such, the unit operated in a condition not allowed by Technical Specification. Failure to perform the actions required by Technical Specifications is reportable pursuant to 10CFR50.73(a)(2)(i)(B).

The Overtemperature Delta Temperature (OTDT) reactor trip function provides core protection to prevent Departure from Nucleate Boiling (DNB) for slow reactor transients. The STP UFSAR Section 15 safety analysis takes credit for the OTDT reactor trip function for transients that results in an increase in reactor power and transients that decrease reactor pressure. The lead/lag circuit was set such that the OTDT would occur early for transients that results in an increase in reactor power, such as an uncontrolled rod withdrawal at power. This increases the margin to DNB. For transients that result in a decrease in Reactor Coolant System (RCS) pressure, such as a stuck open pressurizer relief valve and steam generator tube rupture, the misadjusted time constant has a negligible impact on the plant response. Therefore, the misadjusted lead/lag did not have an adverse impact on the STP UFSAR Section 15 safety analysis.

CORRECTIVE ACTIONS:

1. Unit 1 RC-0430 Temperature loop was recalibrated on January 15, 1993, prior to entry into Mode 2. Results were satisfactory.

2. Unit 1 RC-0455 and RC-0456 Pressurizer Pressure loops were recalibrated on January 14, 1993. Results were satisfactory.

3. The graphs in the RC-0430 Temperature loop and the RC-0455, RC-0456, RC-0457, and RC-0458 Pressurizer Pressure loop calibration procedures were corrected on January 26, 1993.

CORRECTIVE ACTIONS: (Con't)

4. The remaining affected calibration procedures will be revised by April 15, 1993 or prior to next use.

5. The human performance errors that caused the procedure error, incorrect calibrations, and subsequent repeat work activities have been reviewed with Maintenance Department Procedure Writers.

ADDITIONAL INFORMATION:

There have been no similar events previously reported to the NRC regarding a Technical Specification violation due to an RCS Delta Temperature/Average Temperature loop found out-of-tolerance.