The Light company
Houston Lighting & Power South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

February 20, 1992
ST-HL-AE-4014
File No.: G26
10CFR50.73

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

South Texas Project
Unit 2
Docket No. STN 50-499
Licensee Event Report 92-002 Regarding A Safety
Analysis Deficiency Due to Veritrak Transmitter Uncertainties

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P) submits the attached Licensee Event Report 92-002 regarding a safety analysis deficiency due to Veritrak transmitter uncertainties. This event did not have any adverse impact on the health and safety of the public.

If you should have any questions on this matter, please contact Mr. C. A. Ayala at (512) 972-8628 or me at (512) 972-7205.

William J. Jump
Manager,
Nuclear Licensing

SDP/amp

Attachment: LER 92-002 (South Texas, Unit 2)

IE22
1/1

cc:

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L4/NRC/

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

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
South Texas, Unit 2	0 5 0 0 0 4 9 9	1 OF 0 4

TITLE (4)

Safety Analysis Deficiency Due to Veritrak Transmitter Uncertainties

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	2 2	9 2	9 2	0 0 2	0 0	0 2	2 0	9 2		0 5 0 0 0
										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)	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)	X 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
Charles Ayala - Supervising Licensing Engineer	AREA CODE 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 fifteen single-space typewritten lines) (16)

On January 22, 1992, it was determined that STP Unit 2 had been operated in a configuration which resulted in an Over Temperature Delta Temperature (OTDT) trip setpoint which was not conservative relative to the UFSAR Safety Analysis. For a period of approximately one month beginning on September 19, 1990, Unit 2 was operated with a failed T_{HOT} Resistance Temperature Detector (RTD) which was bypassed until the unit entered a refueling outage. Although within the limits of the Technical Specifications, operation with the failed RTD coincident with the nonconservative OTDT setpoint, which should have incorporated Veritrak transmitter uncertainties, represented a reportable condition pursuant to 10CFR50.73 for operation in an unanalyzed condition. The cause of this event was personnel error through a lack of attention to detail in the review and resolution of NSSS vendor recommendations. Administrative compensatory actions allow STP Units 1 and 2 to continue normal operation within the presently defined safety limits until the plant safety analysis is revised and any necessary Technical Specification changes are approved.

LER\92044002.U2

DESCRIPTION OF EVENT:

In 1986 Westinghouse identified a concern relative to drift in the calibration of Veritrak/Tobar transmitters. Westinghouse had reported that during adverse temperature conditions the output of the transmitters may drift beyond the assumptions used to develop the STP Reactor Trip and ESF setpoints. The notification identified the setpoints of concern. The only setpoint identified at that time requiring action was the Pressurizer Pressure Low Safety Injection (SI) setpoint. The recommendation, which was implemented, was to raise that setpoint to 1869 PSIG.

In 1988 Westinghouse sent a final report to STP on this issue. That final report provided a series of recommendations for the setpoints impacted by the Veritrak/Tobar issue. It also provided a series of other actions that should be considered. Believing no other actions were required, HL&P provided a letter to the NRC based on the Westinghouse report, stating that, with the incorporation of the interim setpoint for Pressurizer Pressure Low SI, the STP setpoints were conservative relative to the safety analyses and further changes were not required.

In mid-January, 1992, during preparation for an STP internal Nuclear Assurance Instrumentation Setpoint Assessment, the topic of Veritrak transmitters was selected for review. In the course of resolving questions raised on the 1988 letter, discussions were held with Westinghouse personnel to better understand the issues. Through these discussions, it was determined that the Technical Specification setpoint used for the K_1 constant in the Over Temperature Delta Temperature (OTDT) evaluation was not conservative relative to the UFSAR Safety Analysis. The non-conservatism in the calculation was caused by a combination of Veritrak transmitter uncertainty and an additional .33 percent Delta T span bias which was included as part of the STP design change to eliminate the Resistance Temperature Detector (RTD) bypass lines. Neither the Westinghouse 1988 letter, nor the HL&P review identified that additional bias was present that made the change to K_1 necessary. The bias is only applicable if one of the three hot leg RTDs for a given Reactor Coolant loop fails. Therefore, operation with the Technical Specification value of 1.08 for the OTDT constant K_1 is non-conservative when all error contributions are considered.

Immediate actions taken to investigate this problem identified a period of approximately one month beginning on September 19, 1990, when Unit 2 was operated outside of the bounds of the Safety

DESCRIPTION OF EVENT: (CONT'L)

Analysis. A T_{HOT} RTD had failed time response testing and was bypassed until the Unit entered a refueling outage. Although within the limits of the Technical Specifications, this represents a reportable condition pursuant to 10CFR50.73 for operation in an unanalyzed condition. This determination was reported to the NRC pursuant to 10CFR50.72 on January 23, 1992 at 1453 hours.

HL&P immediately implemented compensatory action to impose additional administrative control on OTDT channel operability, which allowed continued operation within the existing safety limits.

CAUSE OF EVENT:

The cause of this occurrence was inadequate attention to detail in the review and resolution of Vendor recommendations, which resulted in the failure to update the Technical Specification to reflect the new value of K_1.

ANALYSIS OF EVENT:

A bias for loss of an RTD within the Temperature Averaging Scheme combined with the allowance for Veritrak transmitter temperature compensation resulted in the K_1 factor being outside the Safety Analysis Limit. The bases for the Technical Specifications describe the methodology of combining errors associated with a protection channel. The discovered condition resulted in the combination of errors, using the Technical Specification methodology, exceeding the Safety Analysis Limit for OTDT. This is a condition outside the design basis described in the STP UFSAR Chapter 15 safety analysis and is reportable under 10CFR50.73(a)(2)(ii)(B).

A Justification for Continued Operation (JCO) was issued which administratively provides for operation of an OTDT channel if all of the associated T_{HOT} RTDs are operable. If an RTD is inoperable, the JCO requires the affected channel to be put in the trip condition. In addition the Technical Specification limit on OTDT maximum trip setpoint is being administratively controlled to not exceed the computed OTDT trip setpoint by more than 1.3% delta-T span. This eliminates the need for an additional uncertainty allowance and results in the present setpoint being within the Safety Analysis Limit.

CORRECTIVE ACTION:

The present engineering review process has been reviewed and determined to be adequate. The process for the review of NSSS recommendations has evolved over the past four years, and has been incorporated into the Vendor Technical Information Program (VETIP).

The following corrective actions are being taken as a result of this event:

1. JCO 920020, which assures that no unsafe condition exists, was prepared and approved. The JCO's administrative compensatory actions allow STP Units 1 and 2 to continue normal operation within the presently defined safety limits until the plant safety analysis is revised and any necessary Technical Specification changes are approved.

2. Revisions to the STP Setpoint Methodology (WCAP 11273) to incorporate current changes to the safety analyses and setpoint analyses will be established with Westinghouse. It is expected that changes will be incorporated by the fourth refueling outage for Unit 2 and the fifth refueling outage for Unit 1.

ADDITIONAL INFORMATION

At the time of issuance of the operating license a more rigorous program for verification of Technical Specification changes was implemented. This program requires verification of implementation of changes by the Nuclear Assurance Department.

On November 24, 1987, HL&P reported a similar event (LER 87-017) where the revision process for vendor recommendations was not performed in accordance with accepted practice.