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

December 14, 1995
ST-HL-AE-5254
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
Revision 1 to Licensee Event Report 95-004
Technical Specification 3.0.3 Entry Due to the Inoperability of the
Digital Rod Position Indication System

Pursuant to 10CFR50.73, Houston Lighting & Power submits the attached Revision 1 to Unit 2 Licensee Event Report 95-004 regarding a Technical Specification 3.0.3 entry due to the inoperability of the Digital Rod Position Indication System. This event did not have an adverse effect on the health and safety of the public.

If you should have any questions on this matter, please contact Mr. S. M. Head at (512) 972-7136 or me at (512) 972-7988.

R. E. Masse
Unit 2 ,
Plant Manager

SMH/nol

Attachment: LER 95-004 Revision 1, Unit 2

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c:

Leonard J. Callan
Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Thomas W. Alexion
Project Manager
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001 13H15

David P. Loveless
Sr. Resident Inspector
c/o U. S. Nuclear Regulatory Comm.
P. O. Box 910
Bay City, TX 77404-0910

J. R. Newman, Esquire
Morgan, Lewis & Bockius
1800 M Street, N.W.
Washington, DC 20036-5869

K. J. Fiedler/M. T. Hardt
City Public Service
P. O. Box 1771
San Antonio, TX 78296

J. C. Lanier/M. B. Lee
City of Austin
Electric Utility Department
721 Barton Springs Road
Austin, TX 78704

Central Power and Light Company
ATTN: G. E. Vaughn/C. A. Johnson
P. O. Box 289, Mail Code: N5012
Wadsworth, TX 77483

Rufus S. Scott
Associate General Counsel
Houston Lighting & Power Company
P. O. Box 61067
Houston, TX 77208

Institute of Nuclear Power
Operations - Records Center
700 Galleria Parkway
Atlanta, GA 30339-5957

Dr. Joseph M. Hendrie
50 Bellport Lane
Bellport, NY 11713

Richard A. Ratliff
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3189

U. S. Nuclear Regulatory Comm.
Attn: Document Control Desk
Washington, D. C. 20555-0001

J. R. Egan, Esquire
Egan & Associates, P.C.
2300 N Street, N.W.
Washington, D.C. 20037

J. W. Beck
Little Harbor Consultants, Inc.
44 Nichols Road
Cohassett, MA 02025-1166

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 2	05000 499	1 OF 5

TITLE (4) Technical Specification 3.0.3 Entry Due to the Inoperability of the Digital Rod Position Indication System

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 NAME	DOCKET NUMBER
04	04	95	95	-- 004 --	01					05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)					
POWER LEVEL (10)	100	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)
Scott Head - Supervising Engineer	(512) 972-7136

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 April 4, 1995, Unit 2 was in Mode 1 at 100% power. At 1350 hours, a loss of power to the Digital Rod Position Indication System resulted in the entry into Technical Specification 3.0.3. The automatic transfer switch attempted to transfer the load of Instrumentation and Control Power Distribution Panel DP003 from Voltage Regulated Transformer ERV003 to Voltage Regulated Transformer ERV005 due to perturbations on the plant electrical systems as a result of an electrical storm. During the transfer, the switch stopped in mid-position. The resultant loss of power to Distribution Panel DP003 caused a loss of power to the Digital Rod Position Indication Panel. Corrective actions include manually transferring the switch mechanism to the emergency source for distribution panel DP003 and verifying the operability of the Digital Rod Position Indication System, and periodic cycling of the switch to verify satisfactory operation. The cause of the switch to fail to transfer has been attributed to a loose connection of a control wire internal to the switch.

DESCRIPTION OF EVENT:

On April 4, 1995, Unit 2 was in Mode 1 at 100% power. At 1350 hours, a loss of power to the Digital Rod Position Indication System resulted in the entry into Technical Specification 3.0.3. The automatic transfer switch EXS003 attempted to transfer the load of Instrumentation and Control Power Distribution Panel DP003 from Voltage Regulated Transformer ERV003 to Voltage Regulated Transformer ERV005 due to perturbations on the plant electrical systems as a result of an electrical storm. The switch malfunctioned and stopped in the mid-position. The resultant loss of power to Distribution Panel DP003 caused a loss of power to the Digital Rod Position Indication Panel ZCP005.

A severe thunderstorm was ongoing at the time of the condition and electrical perturbations were noted at the station. It is postulated that the voltage drop on the bus associated with the grid perturbation caused the undervoltage relay in the transfer switch circuitry to actuate the transfer switch. Upon identification of the loss of Digital Rod Position display, verification was made that the unit was stable. Inspection of Distribution Panel DP003 determined there was power available from both the normal and emergency regulated transformers; however, there was no indication of power to the distribution panel.

At 1403 hours, after inspection of the transfer mechanism, the switch was manually transferred to the emergency source, restoring power to the distribution panel. Subsequently, at 1407 hours, the switch appropriately, automatically, transferred back to the normal source after its designed time delay. At 1412 hours, the Digital Rod Position Indication System was verified operable and Technical Specification 3.0.3 was exited.

On May 1, 1995, a controlled cycling of the transfer switch was conducted and the automatic transfer function of the switch was verified satisfactory.

NOTE:A thorough inspection of the mechanical switch mechanism is not practical during power operations. Power must be removed from both incoming sources to ensure personnel safety, and to take accurate "as-found" measurements of the switch mechanism.

A previous similar situation occurred on February 3, 1993. Unit 2 was operating in Mode 1 at 100% power. The unit entered Technical Specification 3.0.3 due to the loss of the Digital Rod Position Indication System. That situation occurred during the performance of the Unit Vent Particulate and Effluent Monitor Digital Channel Operational Test for radiation monitor RT-8010A. The distribution panel, DP003, which supplies power to both the RT-8010A monitor and the Digital Rod Position Indication System, experienced a degraded voltage condition during the energization of the RT-8010A monitor. The transfer switch, for the normal/emergency power supply to the distribution panel, responding to the degraded voltage condition on the normal supply, attempted to transfer to the emergency supply. The transfer stopped in the mid-position, resulting in a loss of power to the distribution panel and its loads. Troubleshooting activities performed on the auto transfer switch revealed no evidence of mechanical binding or wear.

DESCRIPTION OF EVENT: (Continued)

As a result of this situation, Houston Lighting & Power implemented a design change to remove the load associated with monitor RT-8010A from distribution panel DP003 and created preventive maintenance activities to test/inspect these and similar automatic transfer switches.

CAUSE OF EVENT:

The cause of the event was failure of automatic transfer switch EXS003 to transfer the load of distribution panel DP003 from its normal supply to the emergency supply as designed. The switch stopped travel in the mid-position between the normal and emergency contacts. A work order was initiated to troubleshoot the transfer switch during the next scheduled system outage in October 1995. In the interim, the transfer switch was cycled to verify continued satisfactory operation.

During the Unit 2 refueling outage it was determined that the root cause of the DP003 transfer switch failure to complete its transfer can be attributed to a loose connection of a control wire internal to the switch.

ANALYSIS OF EVENT:

Control rod and shutdown rod position accuracy are essential during power operation. Power peaking, ejected rod worth, or shutdown margin limits may be violated in the event of a Design Basis Accident if control or shutdown rods are operating outside their limits. The Technical Specifications establish acceptance criteria for rod position indication to ensure that rod positions are known with sufficient accuracy in order to verify the core is operating within the group sequence, overlap, design peaking limits, ejected rod worth, and minimum shutdown margin. The Digital Rod Position Indication System provides a highly reliable indication of actual control rod position.

This condition is reportable since the loss of the 120 VAC distribution panel bus resulted in the loss of both channels of the Digital Rod Position Indication System and entry into Technical Specification 3.0.3. Operating with both channels of Digital Rod Position Indication System inoperable is a condition prohibited by Technical Specifications and reportable pursuant to 10CFR50.73(a)(2)(i)(B).

During this situation power was unavailable to Digital Rod Position Indication for a period of 17 minutes. During that time frame, there was no automatic demand for control rod movement nor was there manual control rod manipulation. In addition, the Demand Step Counter remained functional and indicated proper control rod position.

CORRECTIVE ACTIONS:

The following corrective actions have been taken or will be taken as a result of this event:

1. The switch mechanism was manually transferred to the emergency source for DP003. The Digital Rod Position Indication System was verified operable and Technical Specification 3.0.3 was exited.

2. A caution tag was hung on the switch providing instructions on how to manually transfer the switch.

3. A controlled cycling of the transfer switch was conducted and the automatic transfer function of the switch was verified to be satisfactory.

4. Until troubleshooting can be performed on the transfer switch, Control Room personnel have been provided a training bulletin describing the problems with the transfer switch and actions necessary to transfer the switch. The transfer switch was cycled the second time to verify continued satisfactory operation.

5. Troubleshooting of the transfer switch will be performed during the next scheduled system outage in October 1995. Upon completion of troubleshooting of the transfer switch, corrective actions will be developed as necessary and a revision to this Licensee Event Report will be submitted.

6. A Work Order was performed to allow the overhaul and lubrication of the transfer switch during last outage. A control wire was found loose. The wire was reterminated and the switch was observed to transfer smoothly.

ADDITIONAL INFORMATION:

During the course of the root cause review and investigation, a concern was identified whether the setpoints for Undervoltage relays in the transfer switch were set slightly high. The high setting could cause the transfer switches to transfer prematurely during system perturbations. This issue is being addressed by our Corrective Action Program.

The transfer switch is type 302C1390: 260 amp, 3 phase, and 208 volt. The transfer switch was provided by ASCO.

There has been one previous situation of a loss of power to the Digital Rod Position Indication System due to the failure of the automatic transfer switch. Unit 2 Licensee Event Report 93-003 was submitted on March 5, 1993 to document that occurrence.

Unit 1 Licensee Event Report 92-012 was submitted on October 2, 1992, which documented an entry into Technical Specification 3.0.3 due to the loss of power to the Digital Rod Position Indication System. The cause of that condition was a failure of one of the Digital Rod Position Indication System control module power supplies coupled with an unknown failure of a redundant power supply.