NON-PUBLIC?: N
ACCESSION #: 9008070019
LICENSEE EVENT REPORT (LER)

FACILITY NAME: South Texas, Unit 1 PAGE: 1 OF 3

DOCKET NUMBER: 05000498

TITLE: Reactor Trip on Over Temperature Delta Temperature Due to Reduction In RCS Pressure Coincident With One Channel in Test
EVENT DATE: 06/16/90 LER #: 90-016-00 REPORT DATE: 07/16/90

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 2 POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Scott Head - Supervising Licensing Engineer TELEPHONE: (512) 972-7136

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On July 2, 1990, Unit 1 was in Mode 1 at about 100 percent power. At 1808 hours a reactor trip was initiated when 2 out of 4 coincidence was satisfied on over temperature/delta temperature (OT Delta T). Unit 1 was in power ascension and Loop 4 Delta temperature and T average bistables were in a trip condition to support the surveillance in progress. Due to a decrease in Reactor Coolant System (RCS) pressure, Loop 3 OT Delta T tripped when the setpoint reached the actual Delta T. Two of the four channels in a tripped condition satisfied the trip logic and initiated the reactor trip. A Feedwater Isolation occurred on low average Reactor Coolant System temperature and an Auxiliary Feedwater System actuation occurred on low steam generator level as expected. The Main Steam Isolation Valves were manually closed to limit the cooldown and the plant was stabilized in Mode 3. No unexpected post trip transients were observed. Corrective actions to prevent this incident include logging OT Delta T and actual Delta T every shift and requiring that power not be increased when above 90 percent unless all channels of OT Delta T are operable during power ascension.

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END OF ABSTRACT

DESCRIPTION OF EVENT:

On July 2, 1990, Unit 1 was in Mode 1 at about 100 percent power. The unit was in power ascension and a surveillance was being performed on

Loop 4 delta temperature and average temperature to satisfy Technical Specification requirements. The test required the over temperature/delta temperature (OT Delta T) bistables to be tripped to allow performance of delta temperature calibration. At 1445 hours, the bistables in Loop 4 OT Delta T were tripped to perform the surveillance. At 1754 hours, to reduce spray flow in the Pressurizer the Reactor Operators secured Pressurizer Heater 1E and a normal pressure decrease was initiated since the boron concentrations in the RCS and the Pressurizer had equalized. The decrease in Pressurizer pressure caused the over temperature/delta temperature setpoints to decrease. The Pressurizer pressure is controlled by 1 of 2 available pressure channels. The channel selected (Loop 1) was reading higher than the others. These pressure channels also have input to the OT Delta T setpoint. Therefore, controlling pressure on a higher channel (but within allowed tolerance) allows the remaining channel OT Delta T setpoints to drift low. Due to a decrease in RCS pressure, Loop 3 OT Delta T tripped when the setpoint reached the actual Delta T. Since Loop 4 OT Delta T was already tripped to perform a surveillance, the Loop 3 trip satisfied the two out of four coincidence to initiate a reactor trip at 1808 hours. A Feedwater Isolation occurred on low average Reactor Coolant System temperature and an Auxiliary Feedwater System actuation occurred on low steam generator level as expected. The Main Steam Isolation Valves were manually closed to limit the cooldown and the plant was stabilized in Mode 3. No unexpected post trip transients were observed. The NRC was notified of this event at 2019 hours.

The Reactor Coolant System temperatures and pressures were within the allowable margins prior to and during the trip. The Pressurizer pressure was decreasing at a rate of 3 to 5 psig/min after Heater 1E was secured. The Reactor Operators noted that Loop 2 and 3 OT Delta T setpoints were

approximately 105 percent and oscillating 2 percent, and their pressures were lower than Loop 1 by approximately 25 psig but were still within allowable limits. The Operators also noted the decreasing OT Delta T margins just prior to the trip and initiated RCS boration to lower average temperature. However, the trip occurred before boration could take effect. Subsequent to the trip the Loop 3 pressure transmitter was calibrated and found to be in tolerance. The Pressurizer pressure controller was also calibrated and found to be in tolerance. Steps of Reload Initial Startup Testing were performed which verified that delta temperature calculations were accurate. The Loop 4 delta temperature calibration was completed satisfactorily.

CAUSE OF EVENT:

This event occurred due to less than adequate attention to the decreasing margin to the over temperature/delta temperature trip setpoint during power ascension. The operators did not recognize the combination of events that effected the reduction of the setpoints and the parameter differences which decreased the margin.

ANALYSIS OF EVENT:

This event is reportable under the guidelines of 10CFR50.72(b)(2)(ii). The trip was a conservative action caused by the actuation of a protective device. This event did not result in any adverse safety or radiological concerns nor did it threaten the safety of the public at any

time.

CORRECTIVE ACTION:

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

1. The procedures controlling power ascension have been revised to

require specific determination and monitoring of the OT Delta T margin to trip at 90 percent and 98 percent power and to prevent proceeding with power ascension unless limits are met or management approval is obtained. The procedure has also been revised to require that all channels of OT Delta T be operable at 90 percent power prior to proceeding with power ascension unless management approval is obtained.

2. OT Delta T and actual Delta T values will be logged every Shift to monitor for slow transients.

3. Operators were informed and this event will be discussed with all licensed operators, re-emphasizing the impact of changes in plant parameters on trip setpoints. This will be completed by December 31, 1990.

ADDITIONAL INFORMATION:

No prior similar incidents or trips have occurred at STP due to overtemperature/delta temperature channels.

A1/LER016U1.L01

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

August 2, 1990
ST-HL-AE-3526
File No.: G26
10CFR50.73

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

South Texas Project Electric Generating Station
Unit 1
Docket No. STN 50-498
Licensee Event Report 90-016
Regarding A Reactor Trip Due to
Over Temperature Delta Temperature Channel

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P) submits the attached Licensee Event Report (LER 90-016) regarding a reactor trip due to over temperature delta temperature channel. This event had no adverse impact 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 myself at (512) 972-7921.

G. E. Vaughn
Vice President
Nuclear Generation

SMH/nl

Attachment: LER 90-016 (South Texas, Unit 1)

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A Subsidiary of Houston Industries Incorporated

cc:

Regional Administrator, Region IV Rufus S. Scott
Nuclear Regulatory Commission Associate General Counsel
611 Ryan Plaza Drive, Suite 1000 Houston Lighting & Power Company
Arlington, TX 76011 P. O. Box 61867
Houston, TX 77208
George Dick, Project Manager
U. S. Nuclear Regulatory Commission INPO
Washington, DC 20555 Records Center
1100 Circle 75 Parkway

J. I. Tapia Atlanta, GA 30339-3064
Senior Resident Inspector
c/o U. S. Nuclear Regulatory Dr. Joseph M. Hendrie
Commission 50 Bellport Lane
P. O. Box 910 Bellport, NY 11713
Bay City, TX 77414
D. K. Lacker
J. R. Newman, Esquire Bureau of Radiation Control
Newman & Holtzinger, P.C. Texas Department of Health
1615 L Street, N.W. 1100 West 49th Street
Washington, DC 20036 Austin, TX 78704

D. E. Ward/R. P. Verret
Central Power & Light Company
P. O. Box 2121
Corpus Christi, TX 78403

J. C. Lanier
Director of Generation
City of Austin Electric Utility
721 Barton Springs Road
Austin, TX 78704

R. J. Costello/M. T. Hardt
City Public Service Board
P. O. Box 1771
San Antonio, TX 78296

Revised 12/15/89

L4/NRC/

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