

The Light company

Houston Lighting & Power

South Texas Project Electric Generating Station P. O. Box 289 Wadsworth, Texas 77483

April 15, 1991
ST-HL-AE-3741
File No.: G02.04
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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project Electric Generating Station
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
Response to NRC Open Items 9107-01 and 9107-02

As requested by your letter dated March 15, 1991, please find attached, Houston Lighting & Power Company's (HL&P) planned actions to address the issues identified by the inspection of HL&Ps response to Generic Letter 88-017 "Loss of Decay Heat Removal".

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

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Manager,
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RAD/amp

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(498/499) 9107-01; 9107-02

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OPEN ITEM 9107-01

Restatement of NRC Concern

HL&P observed level indication anomalies of 4 to 6 inches for the tygon tube RCS sightglass (which preceded the current wide range magnetic float type gauge) during mid-loop operations on Unit 1 with certain Residual Heat Removal (RHR) pump configurations. HL&P is requested to describe the compensatory actions which will be implemented if the plant operates in a mid-loop configuration prior to quantifying the anomalies including appropriate precautions in procedures and training.

HL&P Response

This concern arises from the first mid-loop evolution performed on Unit 1 where a discrepancy existed between the tygon tube RCS sightglass (attached to the crossover piping drain on loop A) and the Reactor Vessel Water Level System (RVWL) indication. This difference was approximately 5 inches and exceeded error estimates for the correlation between these two independent level indicating systems. Subsequent to the evolution, it was determined that the most likely cause for this level difference was the combined effects of the 'A' train RHR pump being in service (reducing the actual level in the 'A' RCS loop) and the tygon tube connection point (which had additional flow restrictions due to the Reactor Coolant pump and the valves upstream of the drain flange). This condition was originally discussed with the NRC on a previous inspection conducted on Unit 1. At that time, the NRC recommended that this apparent anomaly should be investigated and the results be incorporated into training and operational procedures.

Several evolutions were performed which provide additional information that was not previously available. A modification for each unit was initiated which installed a sealed float type gauge glass (RCS sightglass) to replace the tygon tubing. Following this installation, an informal check conducted on Unit 2 during a defueled RCS low inventory condition showed only a 2 inch difference between the RCS sightglass and the narrow range Hot leg sightglass. The following year, Unit 2 performed a mid-loop evolution in support of the removal of nozzle dams at the end of the first refueling without problem. In addition Unit One also conducted, with the sealed float type gauge glass installed, a defueled low RCS level condition to support plant maintenance, and again there were no problems encountered.

The following administrative controls are currently used during approach to and operation during mid-loop:

- 1) The procedure OPOP03-ZG-0009 "Mid-Loop Operation" (current revision 3) requires a correlation between the Pressurizer level and the RCS level sightglass (step 5.10.5), the RVWL and the RCS sightglass (step 5.16), and between the local narrow range Hot leg sightglass and the Control Room indications (recorder and digital readout) (step 5.30). This procedure also requires a continuous monitoring of the RCS level sightglass whenever level changes are in progress (step 4.29). These various cross-checks ensure that both the magnitude and variance of level variations are immediately available to the operator in the Control Room during the entire evolution. The RCS sightglass level may vary from the other indications without stopping the draindown into mid-loop. In addition, the possibility of level variance has been discussed with the operators as part of their mid-loop training. Therefore, level variations will not reduce the ability to accurately control level.
- 2) The narrow range level indication system (two independent channels) is required to be placed in service above the RVWL point 3 (34'-10") such that level indication will be available as soon as either loop A or loop C level drops into the narrow range sightglass band (31'-11.5" to 33'-5.5"). Since the primary factor in the initiation of air induction into the RHR pump suction piping is the actual level in the respective RCS hot leg, this ensures that the operator has an immediate and continuous indication of the proximity to air entrainment. Once a stable draindown rate is established, a calculation is performed (step 5.19), such that the operator will know the approximate time when the narrow range sightglass indication should be available and can take action if that indication does not change as expected.
- 3) The procedure also requires that while the RCS level is within the range of the narrow range indication, this indication shall be used to control the RCS level (step 4.12). Therefore, even if a difference exists between the RCS level sightglass and the narrow range indication, this will not affect the operator's ability to accurately control RCS level to prevent air entrainment and subsequent cavitation.

These plant procedures and indications are considered adequate to safely control draindown to a mid-loop condition.

In view of the above listed limitations and available independent indications, it is considered that no further administrative actions are required to ensure safe entry into mid-loop. Specifically, no verification of the correlation of the RCS sightglass to other independent level sensors need be performed prior to the next mid-loop evolution beyond those required in the operational procedures.

OPEN ITEM 9107-02

Restatement of NRC Concern

During review of procedural steps in OPOP04-RH-0001 "Loss of RHR" which initiate containment evacuation and closure, the NRC expressed concern that the procedure would not ensure timely containment closure.

HI&P Response

The Loss of RHR procedure will be revised to incorporate the Westinghouse Owner's Group (WOG) "Loss of RHR While Operating at Mid-Loop Conditions" procedure guidance as part of the procedure enhancement program. The WOG procedure guidance places the initiation of containment closure early in the procedure based on a specified time prior to core boiling. This action will be completed by September 30, 1991.