

The Light company

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

South Texas Project Electric Generating Station Unit 1

Additional Information Relative to Technical Specification Change Requested for Excessive Cooldown Protection

Houston Lighting & Power's (HL&P) letter to you dated May 18, 1988 (ST-HL-AE-2656) requested a Technical Specification change to delete the Excessive Cooldown Protection circuit and a waiver of compliance to allow operation with this circuit bypassed until the Technical Specification change could be approved. As a result of discussion with the NRC staff, HL&P is now requesting an emergency Technical Specification change in lieu of a waiver of compliance. The following information is provided to justify the request for an emergency Technical Specification change.

Three unanticipated safety injection actuation events occurred during the startup test program which progressively led HL&P to identify the root cause as an oversight in the design of the Excessive Cooldown Protection System. It was not until evaluation of the third event, which occurred on March 30, 1988, that HL&P had enough information to understand the full scope of the problem. HL&P has concluded that anytime the Reactor Coolant Pumps are stopped while charging flow is maintained, a Safety Injection actuation is highly likely to occur due to excessive cooldown protection. This is not an immediate safety concern as the event can be mitigated through existing plant procedures; however, it does result in an unnecessary complication during certain events such as loss of offsite power and causes unnecessary cycles on safety equipment.

The condition does create a problem for conducting two startup tests: the shutdown from outside the control room test and the loss of offsite power test. During both of these tests, the conditions will be present in which excessive cooldown protection is expected to cause a Safety Injection actuation. Conduct of these tests prior to approval of the proposed Technical Specification change will cause the operators to have to mitigate Safety Injection actuation as part of the tests. This is beyond the scope of the tests and significantly complicates plant response.

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Mitigating a Safety Injection creates a substantially more challenging test and alters the scope of the test. For example, the purpose of the loss of offsite power test is to demonstrate that the plant can be maintained in a stable hot standby condition for 30 minutes after a simulated loss of offsite power (LOOP). Excessive Cooldown Protection is expected to actuate Safety Injection about 10-30 minutes into the test. This will result in stripping LOOP loads from the Diesel Generators and resequencing with safety injection loads.

Additionally, a Safety Injection actuation during these tests could initiate plant responses different from those intended in the design. For example, during the shutdown from outside the control room test, a safety injection actuation would result in letdown isolation, thus preventing the testing of this systems ability to control reactor coolant system inventory as intended by the design. Thus, this aspect of shutdown from outside the control room might not be completely tested.

Shortly after the March 30, 1988 event, HL&P in conjunction with a review by Westinghouse, identified the root cause of this event and began to pursue a solution. Westinghouse was placed on an expedited schedule with two special dedicated teams created to determine the corrective action, conduct the design review and perform the safety evaluation. Several options were considered and it was determined that the best solution was to delete the excessive cooldown protection. Westinghouse was assigned to develop the design change and the necessary documentation to support the requested Technical Specification change. All feasible actions were taken to expedite the Westinghouse design and safety review. The Westinghouse review required that the original design basis for the excessive cooldown actuation circuitry be reviewed and the impact of its removal on FSAR analyses be fully considered. This review had to be completed to verify that the change would not impact plant safety before HL&P could internally approve and request a Technical Specification change. On April 18, 1988, HL&P submitted a letter to the NRC which identified the issue and requested a meeting with the NRC staff to discuss the problem and the proposed resolution. A meeting was held on May 6, 1988. Westinghouse completed their review and provided HL&P with the information necessary to support the Technical Specification change on May 4, 1988. HL&P conducted an internal review, assembled the material into a submittable format and expedited the change through the Plant Operations Review Committee and Nuclear Safety Review Board. HL&P formally requested the Technical Specification change on May 18, 1988.

The shutdown from outside the control room and loss of offsite power tests are normally conducted during initial plant startup prior to exceeding the 30% power plateau. HL&P recognizes the desirability of conducting these tests as early as possible in the test program, but considers it undesirable to conduct them prior to implementation of the proposed design change. Therefore, HL&P is requesting an emergency Technical Specification change to allow deletion of the excessive cooldown protection circuit prior to conducting these tests.

HL&P expects to be in a position to conduct these tests by May 24, 1988 and to escalate power to the 50% plateau after completion of these tests.

If you have any questions or need further information, please contact M. A. McBurnett at (512)972-8530.

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