

# 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-3750  
File No.: G9.06  
10CFR50.90

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  
Proposed Amendment to the Unit 1 and 2  
Technical Specifications 2.2.1, 3.3.1,  
Tables 2.2-1, 3.3-1, 3.3-2, 4.3-1, Item 4

The purpose of this submittal is to propose a change to South Texas Project Electric Generating Station (STPEGS) Technical Specifications 2.2.1, 3.3.1, Tables 2.2-1, 3.3-1, 3.3-2, 4.3-1, Item 4. These Specifications regard the negative flux rate trip of the reactor.

Houston Lighting & Power Company (HL&P) has reviewed the attached proposed amendment pursuant to 10CFR50.92 and determined that it does not involve a significant hazards consideration. The basis for this determination is provided in the attachments. In addition, based on the information contained in this submittal and the NRC Final Environmental Assessment for STPEGS Units 1 and 2, HL&P has concluded that, pursuant to 10CFR51, there are no significant radiological or non-radiological impacts associated with the proposed action, and the proposed license amendment will not have a significant effect on the quality of the environment.

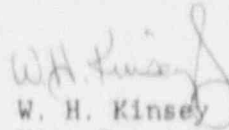
The STPEGS Nuclear Safety Review Board has reviewed and approved the proposed changes.

In accordance with 10CFR50.91(b), HL&P is providing the State of Texas with a copy of this proposed amendment.

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If you should have any questions concerning this matter, please contact Mr. A. W. Harrison at (512) 972-7298 or myself at (512) 972-7921.

  
W. H. Kinsey  
Vice President  
Nuclear Generation

GCS/kmd

- Attachments: 1. Significant Hazards Evaluation for a  
Proposed Change to Technical Specifications 2.2.1,  
3.3.1, Tables 2.2-1, 3.3-1, 3.3-2, 4.3-1, Item 4
2. Proposed Technical Specifications 2.2.1,  
3.3.1, Tables 2.2-1, 3.3-1, 3.3-2, 4.3-1, Item 4

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter

Houston Lighting & Power  
Company, et al.,

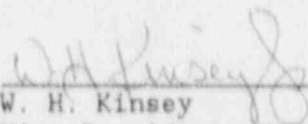
South Texas Project  
Units 1 and 2

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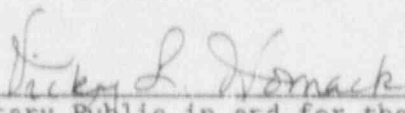
Docket Nos. 50-498  
50-499

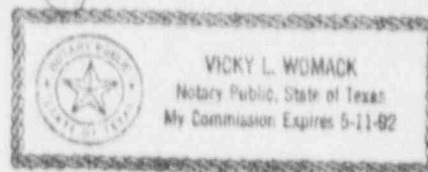
AFFIDAVIT

W. H. Kinsey being duly sworn, hereby deposes and says that he is Vice President, Nuclear Generation, of Houston Lighting & Power Company; that he is duly authorized to sign and file with the Nuclear Regulatory Commission the attached proposed changes to the South Texas Project Electric Generating Station Technical Specifications 2.2.1, 3.3.1, Tables 2.2-1, 3.3-1, 3.3-2, 4.3-1, Item 4; is familiar with the content thereof; and that the matters set forth therein are true and correct to the best of his knowledge and belief.

  
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W. H. Kinsey  
Vice President, Nuclear Generation

Subscribed and sworn to before me, a Notary Public in and for The State of Texas this 15<sup>th</sup> day of April, 1991.

  
\_\_\_\_\_  
Notary Public in and for the  
State of Texas



ATTACHMENT 1

SIGNIFICANT HAZARDS EVALUATION  
FOR A PROPOSED CHANGE TO TECHNICAL SPECIFICATIONS  
2.2.1, 3.3.1, TABLES 2.2-1, 3.3-1, 3.3-2, 4.3-1, ITEM 4

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Background

The Technical Specifications at STPEGS currently require a Power Range, Neutron Flux High Negative Rate trip (NFRT) of the reactor. This trip was required because analysis had shown that in a Dropped Rod Event the trip was required to meet acceptance criteria for Departure from Nucleate Boiling (DNB) design basis during this transient as discussed in WCAP-10297-P-A. By letter dated May 22, 1987, the Westinghouse Owners Group submitted Topical Report WCAP-11394(P), "Methodology for the Analysis of the Dropped Rod Event." In the referenced report, no credit is taken for any direct reactor trip due to the dropped Rod Cluster Control Assembly (RCCA) or for automatic power reduction due to dropped RCCAs. By letter dated October 23, 1989 to Roger A. Newton, Chairman, Westinghouse Owners Group, the NRC found the report acceptable for referencing in license applications. The methodology described in the above report has been utilized with favorable results for Unit 1 Cycle 3 and Unit 2 Cycle 2 at STPEGS. No credit was taken for any direct reactor trip due to dropped RCCAs and no automatic power reduction features are actuated by the dropped RCCAs. The methodology described in the above report will be repeated for each reload cycle at STPEGS.

Proposed Change

Delete reference in Technical Specifications 2.2.1, 3.3.1, Tables 2.2-1, 3.3-1, 3.3-2, 4.3-1, Item 4 to the Power Range, Neutron Flux High Negative Rate reactor trip.

Safety Evaluation

The dropped rod accident is initiated by a single electrical or mechanical failure which causes any combination of rods from the same group of a given bank to drop to the bottom of the core. The resulting negative reactivity insertion causes reactor power to quickly decrease. In manual control, a new equilibrium condition will be reached.

If a dropped rod accident occurs while in the automatic rod control mode, the Rod Control System receives signals from the excore detectors and the turbine to indicate a Primary/Secondary side power mismatch. Partially inserted control rods are withdrawn and a power overshoot may occur. An increase in the hot channel factor due to skewed power distribution may also occur. If the reactor does not trip, a new equilibrium condition will be reached.

#### Safety Evaluation (cont'd)

The new Dropped Rod analysis technique, performed in accordance with WCAP-11394-P-A, is essentially the same as the existing analysis performed in accordance with WCAP-10297-P-A. Three major differences in WCAP-11394-P-A are that it no longer limits the dropped rod's worth in the statepoint calculation, it considers all combinations of rods, and reliance on the NFRT is not considered in the calculation of the statepoints. A minor difference is that inputs to the statepoint calculation are loop specific (2 loop, 3 loop, 4 loop), rather than bounding for all plants. The DNB calculations and acceptance limits are the same as the WCAP-10297-P-A analysis.

The NRC has accepted WCAP-11394-P-A for licensing applications. In the NRC acceptance the staff stated that the staff's intent was not to repeat the review performed in the acceptance of WCAP-11394-P-A. The staff did intend to ensure that WCAP-11394-P-A was applicable to the plant making a licensing application, and the STPEGS design is applicable to WCAP-11394-P-A.

The South Texas SER, Section 15.4.3, acceptance limit states that DNB will not occur for the Dropped Rod accident. As previously stated, the Unit 1 Cycle 3 and Unit 2 Cycle 2 Dropped Rod Analyses have been completed for both units using WCAP-11394-P-A, and the DNBR acceptance limit was met.

The margin of safety is the difference between the DNB acceptance limit and the failure of the fuel rod cladding. The DNB acceptance limits are the same for the existing and new analyses and there is no change in the fuel rod cladding, so the margin of safety is also the same.

#### Implementation

STPEGS proposes that the NFRT be deleted from Technical Specifications. The NFRT will be removed by a Temporary Modification from Units 1 and 2 upon NRC approval of this proposed change. The Temporary Modification can be accomplished by electrically removing the NFRT from the input to the two out of four logic. Permanent removal of the NFRT will be accomplished during refueling outage five for Unit 1 (1RE05) and during the third refueling outage for Unit 2 (2RE03).

#### Determination of Significant Hazards

Pursuant to 10CFR50.91 this analysis provides a determination that the proposed changes to Technical Specifications does not involve any significant hazards consideration as defined in 10CFR50.92.

1. The proposed change does not involve a significant increase in the probability or consequences of a previously evaluated accident. The applicable accident is a Dropped Rod accident caused by an electrical or mechanical failure of RCCA(s). The proposed change does not modify the RCCAs or change the acceptance criteria for DNB and therefore can not increase the probability or consequences of a previously evaluated accident.

Determination of Significant Hazards (cont'd)

2. The proposed change does not create the possibility of a new or different kind of accident from any previously evaluated. The proposed change does not modify the design or operation of the RCCA and the deletion of the NFRT has been analyzed with acceptable results. The temporary modification of the NFRT has been evaluated for possible failure modes and it has been determined that the modification does not create the possibility of a new or different accident. Therefore, the proposed change does not create the possibility of a new or different accident from any accident previously evaluated.
3. The proposed change does not involve a significant reduction in the margin of safety. The margin of safety is the difference between the DNB acceptance limit and the failure of the fuel rod cladding. The DNB acceptance limits are the same with the proposed change, therefore, the margin of safety remains unchanged.

Conclusion

Based on the above discussion HL&P requests that the proposed change be approved.