

The Light company

Lighting & Power

P.O. Box 1700 Houston, Texas 77001 (713) 228-9211

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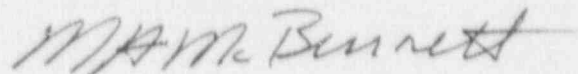
U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

South Texas Project Electric Generating Station
Units 1 and 2
Dockets No. STN 50-498, STN 50-499
10CFR50.46 Required Annual Report of ECCS Model Revisions

In accordance with 10CFR50.46(a)(11), HL&P is submitting the attached information regarding ECCS model revisions affecting South Texas Project (STP) Units 1 and 2.

The cumulative revisions to the Westinghouse Small Break LOCA ECCS Evaluation model are provided for your review. The STP Small Break LOCA analyses remain conservative when the effects of the revision are considered.

If there are any questions, please contact Mr. A. W. Harrison at (512) 972-7298 or myself at (512) 972-8530.



M. A. McBurnett
Manager
Nuclear Licensing

SDP/amp

Attachments: Effects of Westinghouse ECCS Evaluation Model Modifications
on the South Texas Units 1 and 2 LOCA Analysis Results:
Chapter 15 of the Final Safety Analysis Report

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Houston Lighting & Power Company
South Texas Project Electric Generating Station

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cc:

Regional Administrator, Region IV
Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

George Dick, Project Manager
U.S. Nuclear Regulatory Commission
Washington, DC 20555

J. I. Tapia
Senior Resident Inspector
c/o U. S. Nuclear Regulatory
Commission
P. O. Box 910
Bay City, TX 77414

J. R. Newman, Esquire
Newman & Holtzinger, P.C.
1615 L Street, N.W.
Washington, DC 20036

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

J. C. Lanier/M. B. Lee
City of Austin
Electric Utility Department
P.O. Box 1088
Austin, TX 78767

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

Rufus S. Scott
Associate General Counsel
Houston Lighting & Power Company
P. O. Box 61867
Houston, TX 77208

INPO
Records Center
1100 Circle 75 Parkway
Atlanta, GA 30339-3064

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

D. K. Lacker
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3189

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EFFECT OF WESTINGHOUSE EVALUATION MODEL MODIFICATIONS
ON THE SOUTH TEXAS UNITS 1 & 2 LOCA ANALYSIS RESULTS
CHAPTER 15 OF THE FINAL SAFETY ANALYSIS REPORT

The following presents an assessment of the effect of the modifications to the Westinghouse ECCS Evaluation Models on the Loss of Coolant Accident (LOCA) analysis results found in Chapter 15 of the South Texas Units 1 & 2 Final Safety Analysis Report.

Large Break LOCA

The large break LOCA analysis for the South Texas Units 1 & 2 were examined to assess the effect of the applicable modifications to the Westinghouse large break LOCA ECCS Evaluation Model on Peak Cladding Temperature (PCT) results presented in Chapter 15 of the FSAR. The large break LOCA analysis results were calculated using the 1981 version of the Westinghouse large break LOCA ECCS Evaluation Model incorporating the BART analysis technology. The analysis assumed the following information important to the large break LOCA analyses:

- NSSS power level of 102% of 3800 Mwt.
- 17x17XL STD fuel
- Steam Generator Tube Plugging Level of 5% Uniform among the four steam generators.
- Nuclear Peaking Factors of 2.50 for the total peaking factor and 1.52 for the Enthalpy Rise peaking factor.

The limiting break resulted from the double guillotine rupture of the cold leg piping with a discharge coefficient of CD = 0.6 and the maximum safeguards assumptions. The calculated peak cladding temperature was 2122°F.

HL&P reported to the NRC a 5°F penalty for large break LOCA due to an increase in the loop temperature uncertainty. This penalty increased the PCT to 2127°F for the large break LOCA. The NRC staff found this change to be acceptable in Safety Evaluation Report (SER) Supplement 5, Section 16.4. In 1989 Westinghouse notified HL&P of changes to the BART computer code that resulted in a 16°F increase in LBLOCA PCT. The penalty for the LBLOCA raised the PCT to 2143°F. Per 10CFR50.46, HL&P reported this penalty to the NRC as part of the 1989 annual report of ECCS model revisions. This penalty has been incorporated into the licensing basis under 10CFR50.59.

A. Analysis calculated result	<u>2122</u> °F
B. Increase in loop temperature uncertainty (SER, Sup. 5)	+ <u>5</u> °F
C. BART computer code changes	+ <u>16</u> °F
ECCS Evaluation Model Resultant PCT	= <u>2143</u> °F

Small Break LOCA

The small break LOCA analyses for South Texas Unit 1 & 2 were also examined to assess the effect of the applicable modifications to the Westinghouse ECCS Evaluation Models on PCT results reported in Chapter 15 of the FSAR. The small break LOCA analyses results were calculated using the 1985 version of the Westinghouse small break LOCA ECCS Evaluation Model incorporating the NOTRUMP analysis methodology. The limiting size small break resulted from a 4 inch equivalent diameter break in the cold leg. The calculated PCT was 1367°F. The analysis assumed the same information as the large break analysis.

In 1987 HL&P reported to the NRC a 34°F penalty for the Small Break LOCA (SBLOCA) due to a reduction in the Technical Specification Safety Injection (SI) flow. The loop temperature uncertainty was also increased resulting in a 7°F penalty for the SBLOCA. These penalties increased the PCT during a SBLOCA to 1408°F. The NRC staff found these changes to be acceptable in Safety Evaluation Report (SER) Supplement 5, Section 16.4.

In 1989 Westinghouse notified HL&P of changes to the NOTRUMP computer code that resulted in a 42°F increase in SBLOCA PCT. The PCT increased for the SBLOCA to 1450°F. Per 10CFR50.46, HL&P reported these penalties to the NRC in the 1989 ECCS model report. This penalty has been incorporated into the licensing basis under 10CFR50.59.

In 1990 Westinghouse notified HL&P of an inconsistency in the input of the SBLOCA analysis. Westinghouse adjusted the time used to switch the enthalpy of the fluid provided to the steam generators from the main feedwater enthalpy to the auxiliary feedwater enthalpy. This change in the SBLOCA analysis results in a 49°F PCT penalty. The penalty increases the PCT for a SBLOCA to 1499°F. The 49°F penalty is not considered a significant change under 10CFR50.46. This penalty has been incorporated into the licensing basis under 10CFR50.59.

As discussed above, modifications to the Westinghouse small break LOCA ECCS Evaluation Model could affect the small break LOCA analysis results by altering PCT.

A. Analysis calculated result	<u>1367</u> °F
B. Increase in loop temperature uncertainty, (SER, Sup. 5)	+ <u>7</u> °F
C. SI flow reduction (SER, Sup. 5)	+ <u>34</u> °F
D. NOTRUMP computer code changes	
F. AFWS enthalpy switchover time	+ <u>49</u> °F
ECCS Evaluation Model Modifications Resultant PCT	= <u>1499</u> °F