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

November 22, 2016
NOC-AE-16003422
10 CFR 50.46 (a)(3)(i)
10 CFR 50.46 (a)(3)(ii)

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

South Texas Project
Units 1&2
Docket Nos. STN 50-498, STN 50-499

10 CFR 50.46 Thirty-Day Report of Significant ECCS Model Changes and Annual Report

References:

1. Letter from R. F. Dunn to NRC, 10 CFR 50.46 Thirty-Day Report of Significant ECCS Model Changes, dated February 24, 2016, NOC-AE-16003341 (ML16103A512)
2. Letter from R. F. Dunn to NRC, Thirty-Day Report of Significant ECCS Model Changes and Annual Report, dated June 9, 2015, NOC-AE-15003249 (ML15177A012)

In accordance with the requirements of 10 CFR 50.46 (a)(3)(i), STP Nuclear Operating Company (STPNOC) is submitting a 30-day report for a significant change in the South Texas Unit 2 Emergency Core Cooling Model. In addition, the annual report for South Texas Project Units 1 and 2 is also provided in the attachment in accordance with 10 CFR 50.46 (a)(3)(ii).

In Reference 1, STPNOC notified the NRC that for Unit 1 Cycle 20 there was no peak clad temperature (PCT) penalty due to gamma energy deposition model (GEDM) violation, and the Large Break loss-of-coolant accident (LOCA) PCT was reduced from 2120°F back to 2117°F. Therefore, there is no change to the Unit 1 Large Break LOCA PCT. Also, there is no change to the PCT for Small Break LOCA.

In Reference 2, STPNOC notified the NRC that the Unit 2 Cycle 18 Large Break LOCA PCT had increased by 8°F due to an increase of the hot assembly average rod GEDM and hot rod calculated values. As a result, the Unit 2 Cycle 18 PCT had increased from 2117°F to 2125°F. For the current Unit 2 Cycle 19, there is no GEDM PCT penalty, so the PCT is reduced by 8°F from 2125°F back to 2117°F. Since the absolute value of PCT changes to the Analysis of Record exceeds 50°F, the change is considered significant in accordance with 10 CFR 50.46 (a)(3)(i). The PCT value for the Small Break LOCA is not changed.

A002
NRR

No schedule for reanalysis is proposed since both the Unit 1 and Unit 2 PCTs remain below the 10 CFR 50.46 (b)(1) limit of 2200°F.

There are no commitments in this letter.

If there are any questions regarding this information, please contact Safdar Hafeez at 361-972-8906.

Roland F. Dunn
Manager
Nuclear Fuel and Analysis

Attachment: Unit 1 & Unit 2 Annual Report (PCT Assessment)

CC:
(Paper Copy)

Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
1600 East Lamar Boulevard
Arlington, TX 76011-4511

Lisa M. Regner
Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North (O8H04)
11555 Rockville Pike
Rockville, MD 20852

NRC Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 289, Mail Code: MN116
Wadsworth, TX 77483

(Electronic Copy)

Morgan, Lewis & Bockius LLP
Steve Frantz, Esquire

U.S. Nuclear Regulatory Commission
Lisa M. Regner

NRG South Texas LP
Chris O'Hara
Jim von Suskil
Skip Zahn

CPS Energy
Kevin Pollo
Cris Eugster
L. D. Blaylock

City of Austin
Elaina Ball
John Wester

Texas Dept. of State Health Services
Helen Watkins
Robert Free

Unit 1 & Unit 2 Annual Report (PCT Assessment)

GENERAL CODE MAINTENANCE

Background

Various changes have been made to enhance the usability of codes and to streamline future analyses. Examples of these changes include modifying input variable definitions, units and defaults; improving the input diagnostic checks; enhancing the code output; optimizing active coding; and eliminating inactive coding. These changes represent Discretionary Changes that will be implemented on a forward-fit basis in accordance with Section 4.1.1 of WCAP-13451.

Affected Evaluation Model(s)

1981 Westinghouse Large-Break LOCA Evaluation with BASH
1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect

The nature of these changes leads to an estimated Peak Cladding Temperature (PCT) impact of 0°F.

Unit 1 & Unit 2 Annual Report (PCT Assessment)

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Large Break

Plant Name: South Texas Unit 1
Utility Name: STPNOC

AnalysisInformation

EM:	BASH	**Analysis Date:**	7/1/1998	**Limiting Break Size:**	Cd=0.8
FQ:	2.55	**FdH:**	1.62		
Fuel:	RFA / Vantage 5H	**SGTP (%):**	10		

Notes:
1. RFA Re-analysis - FdH = 1.55 for Once Burned Standard Fuel
2. Limiting Break run was performed with Min SI, Hi Tav, and IFBA

	Clad Temp (°F)
LICENSING BASIS	
Analysis-Of-Record PCT	2090
PCT Assessments (Delta PCT)	
A. PRIOR ECCS MODEL ASSESSMENTS	
1. IMP Database Error Corrections	0
2. PAD Version 4.0 Implementation	-30
3. LOCBART Pellet Volumetric Heat Generation Rate	6
4. PWROG TCD Evaluation - Rebaseline of AOR	5
5. PWROG TCD Evaluation - Effect of TCD and Assembly Power/Peaking Factor Burndown	0
B. PLANNED PLANT MODIFICATION EVALUATIONS	
1. None	0
C. 2015 ECCS MODEL ASSESSMENTS	
1. None	0
D. OTHER	
1. Rebaseline of AOR	46
LICENSING BASIS PCT + PCT ASSESSMENTS	**2117**

Unit 1 & Unit 2 Annual Report (PCT Assessment)

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: South Texas Unit 1

Utility Name: STPNOC

AnalysisInformation

EM:	NOTRUMP	**Analysis Date:**	6/1/2000	**Limiting Break**	2 inch
FQ:	2.7	**FdH:**	1.62		
Fuel:	RFA / Vantage 5H	**SGTP (%):**	10		

Notes:
1. Delta 94 Replacement Steam Generator
2. Limiting Break run was performed with Hi Tavg, Hi Tmfw, and S2

	Clad Temp (°F)
LICENSING BASIS	
Analysis-Of-Record PCT	1578
PCT Assessments (Delta PCT)	
A. PRIOR ECCS MODEL ASSESSMENTS	
1. IMP Database Error Corrections	0
2. NOTRUMP Version 38.0 Namelist Error Correction	0
3. NOTRUMP Bubble Rise / Drift Flux Model Inconsistency Corrections	34
B. PLANNED PLANT MODIFICATION EVALUATIONS	
1. None	0
C. 2015 ECCS MODEL ASSESSMENTS	
1. None	0
D. OTHER	
1. Burst and Blockage/Time in Life	0
LICENSING BASIS PCT + PCT ASSESSMENTS	**1612**

Unit 1 & Unit 2 Annual Report (PCT Assessment)

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Large Break

Plant Name: South Texas Unit 2
Utility Name: STPNOC

AnalysisInformation

EM:	BASH	**Analysis Date:**	7/1/1998	**Limiting Break Size:**	Cd=0.8
FQ:	2.55	**FdH:**	1.62		
Fuel:	RFA / Vantage 5H	**SGTP (%):**	10		

Notes:
1. RFA Re-analysis - FdH = 1.55 for Once Burned Standard Fuel
2. Limiting Break run was performed with Min SI, Hi-Tav, and IFBA

	Clad Temp (°F)
LICENSING BASIS	
Analysis-Of-Record PCT	2090
PCT Assessments (Delta PCT)	
A. PRIOR ECCS MODEL ASSESSMENTS	
1. IMP Database Error Corrections	0
2 PAD Version 4.0 Implementation	-30
3. LOCBART Pellet Volumetric Heat Generation Rate	6
4. PWROG TCD Evaluation - Rebaseline of AOR	5
5. PWROG TCD Evaluation - Effect of TCD and Assembly Power/Peaking Factor Burndown	0
B. PLANNED PLANT MODIFICATION EVALUATIONS	
1. GEDM & Hot Rod Violation Evaluation	0
C. 2015 ECCS MODEL ASSESSMENTS	
1. None	0
D. OTHER	
1. Rebaseline of AOR	46
LICENSING BASIS PCT + PCT ASSESSMENTS	**2117**

Unit 1 & Unit 2 Annual Report (PCT Assessment)

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: South Texas Unit 2

Utility Name: STPNOC

AnalysisInformation

EM:	NOTRUMP	**Analysis Date:**	10/1/2000	**Limiting Break**	2 inch
FQ:	2.7	**FdH:**	1.62		
Fuel:	RFA / Vantage 5H	**SGTP (%):**	10		

Notes:
1. Delta 94 Replacement Steam Generator
2. Limiting Break run was performed with Hi Tavg, Hi Tmfw, and S2

	Clad Temp (°F)
LICENSING BASIS	
Analysis-Of-Record PCT	1578
PCT Assessments (Delta PCT)	
A. PRIOR ECCS MODEL ASSESSMENTS	
1. IMP Database Error Corrections	0
2. NOTRUMP Version 38.0 Namelist Error Correction	0
3. NOTRUMP Bubble Rise / Drift Flux Model Inconsistency Corrections	34
B. PLANNED PLANT MODIFICATION EVALUATIONS	
1. None	0
C. 2015 ECCS MODEL ASSESSMENTS	
1. None	0
D. OTHER	
1. Burst and Blockage/Time in Life	0
LICENSING BASIS PCT + PCT ASSESSMENTS	**1612**