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CP-201300391
Log # TXX-13066

Ref. # 10CFR50.46

April 25, 2013

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: COMANCHE PEAK NUCLEAR POWER PLANT (CPNPP)
DOCKET NOS. 50-445 AND 50-446
ANNUAL REPORT OF CHANGES IN
PEAK CLADDING TEMPERATURE

REF: Letter dated October 18, 2012, from Rafael Flores of Luminant Power to the NRC regarding "30-Day Report for Significant Change in Peak Clad Temperature" (ML12310A058)

Dear Sir or Madam:

Pursuant to 10CFR50.46(a)(3)(ii), Luminant Generation Company LLC (Luminant Power) hereby submits the attached peak cladding temperatures (PCT) for Comanche Peak Nuclear Power Plant (CPNPP), Units 1 and 2. The Large-Break Loss-of-Coolant-Accident and Small-Break Loss-of-Coolant Accident analysis for Units 1 and 2 were performed for Luminant Power with the approved Westinghouse methodologies listed in Technical Specification 5.6.5.

Luminant Power has reviewed the notification of 10CFR50.46 reporting information pertaining to the Emergency Core Cooling System (ECCS) Evaluation Model changes that were implemented by Westinghouse for 2012. Per the referenced letter, Luminant Power submitted information regarding an evaluation of fuel pellet thermal conductivity (TCD) with fuel bumup in the Westinghouse Best Estimate Large Break Loss of Coolant Accident (LBLOCA) analysis methodology for CPNPP Units 1 and 2 and its effect on PCT. The evaluation of fuel pellet TCD determined the change in PCT was determined to be significant and the referenced letter provided the required information. No other changes to, or errors in, the Evaluation Models on the limiting transient PCT were significant for 2012.

This report of the ECCS Evaluation Model changes provides an update on an annual basis. Attachment 1 provides an assessment of the specific changes and enhancements to the Westinghouse Evaluation Models for 2012.

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Attachment 2 provides the calculated LBLOCA and Small Break LOCA PCT margin allocations in effect for the 2012 Comanche Peak Units 1 and 2 Evaluation Models. There were no changes, error corrections, or enhancements to the 1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP. The PCT values determined in the LBLOCA analysis of record, combined with all of the PCT allocations, remain well below the 10CFR50.46 regulatory limit of 2200 degrees Fahrenheit. Therefore, CPNPP Units 1 and 2 are in compliance with 10CFR50.46 requirements and no reanalysis or other action is required.

This communication contains no new licensing basis commitments regarding CPNPP Units 1 and 2.

Should you have any questions, please contact Mr. J. D. Seawright at (254) 897-0140.

Sincerely,

Luminant Generation Company LLC

Rafael Flores

By: Fred W. Madden
Fred W. Madden
Director, Oversight & Regulatory Affairs

Attachments - 1. Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

2. CPNPP Units 1 and 2 Peak Cladding Temperatures

c - A. T. Howell, Region IV
B. K. Singal, NRR
Resident Inspectors, Comanche Peak

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

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)
1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model
1999 Westinghouse Best Estimate Large Break LOCA Evaluation Model for Application to PWRs with Upper Plenum Injection
2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

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

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

EVALUATION OF FUEL PELLET THERMAL CONDUCTIVITY DEGRADATION AND PEAKING FACTOR BURNDOWN

Background

Fuel pellet thermal conductivity degradation (TCD) and peaking factor burndown were not explicitly considered in the Comanche Peak Unit 1 Best Estimate Large Break Loss-of-Coolant Accident (BE LBLOCA) Analysis of Record (AOR). Nuclear Regulatory Commission (NRC) Information Notice 2011-21 (Reference 1) notified addressees of recent information obtained concerning the impact of irradiation on fuel thermal conductivity and its potential to cause significantly higher predicted peak cladding temperature (PCT) results in realistic emergency core cooling system (ECCS) evaluation models. This evaluation provides an estimated effect of fuel pellet TCD and peaking factor burndown on the PCT calculation for the Comanche Peak Unit 1 BE LBLOCA AOR. This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451 (Reference 2).

Affected Evaluation Model

2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect

A quantitative evaluation, as discussed in Reference 3, was performed to assess the PCT effect of fuel pellet TCD and peaking factor burndown on the Comanche Peak Unit 1 BE LBLOCA analysis and concluded that the estimated PCT impact is 122°F for 10CFR50.46 reporting purposes. The peaking factor burndown included in the evaluation is provided in Table 1, is conservative for current cycle and is the same for both Unit 1 and Unit 2. Luminant and its vendor, Westinghouse Electric Company LLC, utilize processes which ensure that the LOCA analysis input values conservatively bound the as-operated plant values for those parameters and will be validated as part of the reload design process.

Table 1: Peaking Factors Assumed in the Evaluation of TCD

Rod Burnup (MWd/MTU)	FdH (1),(2)	FQ Transient (1)	FQ Steady-State
0	1.600	2.500	2.000
30,000	1.600	2.500	2.000
60,000	1.400	1.875	1.500
62,000	1.400	1.875	1.500

(1) Includes uncertainties.
(2) Hot assembly average power follows the same burndown, since it is a function of FdH.

References

1. NRC Information Notice 2011-21, McGinty, T. J., and Dudes, L. A., "Realistic Emergency Core Cooling System Evaluation Model Effects Resulting From Nuclear Fuel Thermal Conductivity Degradation," December 13, 2011. (NRC ADAMS # ML113430785)
2. WCAP-13451, "Westinghouse Methodology for Implementation of 10 CFR 50.46 Reporting," October 1992.
3. OG-12-386, "For Information Only - Input Supporting the PWROG LBLOCA Program Regarding Nuclear Fuel Thermal Conductivity Degradation (PA-ASC-1073, Revision 0) (Proprietary/Non-Proprietary)," September 18, 2012.

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

EVALUATION OF FUEL PELLET THERMAL CONDUCTIVITY DEGRADATION AND PEAKING FACTOR BURNDOWN

Background

Fuel pellet thermal conductivity degradation (TCD) and peaking factor burndown were not explicitly considered in the Comanche Peak Unit 2 Best Estimate Large Break Loss-of-Coolant Accident (BE LBLOCA) Analysis of Record (AOR). NRC Information Notice 2011-21 (Reference 1) notified addressees of recent information obtained concerning the impact of irradiation on fuel thermal conductivity and its potential to cause significantly higher predicted peak cladding temperature (PCT) results in realistic emergency core cooling system (ECCS) evaluation models. This evaluation provides an estimated effect of fuel pellet TCD and peaking factor burndown on the PCT calculation for the Comanche Peak Unit 2 BE LBLOCA AOR. This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451 (Reference 2).

Affected Evaluation Model

2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect

A quantitative evaluation, as discussed in Reference 3, was performed to assess the PCT effect of fuel pellet TCD and peaking factor burndown on the Comanche Peak Unit 2 BE LBLOCA analysis and concluded that the estimated PCT impact is 190°F for 10CFR50.46 reporting purposes. The peaking factor burndown included in the evaluation is provided in Table 1 and is conservative for the current cycle. Luminant and its vendor, Westinghouse Electric Company LLC, utilize processes which ensure that the LOCA analysis input values conservatively bound the as-operated plant values for those parameters and will be validated as part of the reload design process.

Table 1: Peaking Factors Assumed in the Evaluation of TCD

Rod Burnup (MWd/MTU)	FdH (1),(2)	FQ Transient (1)	FQ Steady-State
0	1.600	2.500	2.000
30,000	1.600	2.500	2.000
60,000	1.400	1.875	1.500
62,000	1.400	1.875	1.500

(1) Includes uncertainties.
(2) Hot assembly average power follows the same burndown, since it is a function of FdH.

References

1. NRC Information Notice 2011-21, McGinty, T. J., and Dudes, L. A., "Realistic Emergency Core Cooling System Evaluation Model Effects Resulting From Nuclear Fuel Thermal Conductivity Degradation," December 13, 2011. (NRC ADAMS # ML113430785)
2. WCAP-13451, "Westinghouse Methodology for Implementation of 10 CFR 50.46 Reporting," October 1992.
3. OG-12-386, "For Information Only - Input Supporting the PWROG LBLOCA Program Regarding Nuclear Fuel Thermal Conductivity Degradation (PA-ASC-1073, Revision 0) (Proprietary/Non-Proprietary)," September 18, 2012.

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

HOTSPOT BURST TEMPERATURE CALCULATION FOR ZIRLO CLADDING

Background
A problem was identified in the calculation of the burst temperature for **ZIRLO®**[1] cladding in the HOTSPOT code when the cladding engineering hoop stress exceeds 15,622 psi. This problem results in either program failure or an invalid extrapolation of the burst temperature vs. engineering hoop stress table. This problem has been evaluated for impact on existing analyses, and its resolution represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)
1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model
1999 Westinghouse Best Estimate Large Break LOCA Evaluation Model for Application to PWRs with Upper Plenum Injection
2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect
The evaluation of existing analyses demonstrated no impact on the overall Peak Cladding Temperature (PCT) results, leading to an estimated effect of 0°F.

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[1] *ZIRLO is a registered trademark of Westinghouse Electric Company LLC, its affiliates and/or its subsidiaries in the United States of America and may be registered in other countries. All rights reserved. Unauthorized use is strictly prohibited.*

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

HOTSPOT ITERATION ALGORITHM FOR CALCULATING THE INITIAL FUEL PELLET AVERAGE TEMPERATURE

Background
The HOTSPOT code has been updated to incorporate the following corrections to the iteration algorithm for calculating the initial fuel pellet average temperature: (1) bypass the iteration when the input value satisfies the acceptance criterion; (2) prevent low-end extrapolation of the gap heat transfer coefficient; (3) prevent premature termination of the iteration that occurred under certain conditions; and (4) prevent further adjustment of the gap heat transfer coefficient after reaching the iteration limit. These changes represent a closely-related group of Non-Discretionary Changes in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)
1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model
1999 Westinghouse Best Estimate Large Break LOCA Evaluation Model for Application to PWRs with Upper Plenum Injection
2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect
Sample calculations and engineering judgment lead to an estimated Peak Cladding Temperature (PCT) impact of 0°F.

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

WCOBRA/TRAC AUTOMATED RESTART PROCESS LOGIC ERROR

Background
A minor error was identified in the WCOBRA/TRAC Automated Restart Process (WARP) logic for defining the Double-Ended Guillotine (DEG) break tables. The error has been evaluated for impact on current licensing-basis analysis results and will be incorporated into the plant-specific analyses on a forward-fit basis. These changes represent a closely-related group of Non-Discretionary Changes in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)
1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model
1999 Westinghouse Best Estimate Large Break LOCA Evaluation Model for Application to PWRs with Upper Plenum Injection
2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect
These errors were evaluated to have a negligible impact on the Large Break LOCA analysis results, leading to an estimated Peak Cladding Temperature (PCT) impact of 0°F.

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

ROD INTERNAL PRESSURE CALCULATION

Background

Several issues which affect the calculation of rod internal pressure (RIP) have been identified for certain Best-Estimate (BE) Large-Break Loss-of-Coolant Accident (LBLOCA) evaluation models (EMs). These issues include the sampling of rod internal pressure uncertainties, updating HOTSPOT to consider the effect of transient RIP variations in the application of the uncertainty, and generating RIPs at a consistent rod power. These issues have been evaluated to estimate the impact on existing LBLOCA analysis results. The resolution of these issues represents a closely-related group of Non-Discretionary Changes in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)

1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model
2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect

The effects described above are either judged to have a negligible effect on existing LBLOCA analysis results or have been adequately incorporated into the thermal conductivity degradation evaluations, leading to an estimated Peak Cladding Temperature (PCT) impact of 0°F.

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

NOTRUMP-EM EVALUATION OF FUEL PELLET THERMAL CONDUCTIVITY DEGRADATION

Background
An evaluation has been completed to estimate the effect of fuel pellet thermal conductivity degradation (TCD) on peak cladding temperature (PCT) for plants in the United States with analyses using the 1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP (NOTRUMP-EM). This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)
1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

Estimated Effect
Based on the phenomena and physics of the SBLOCA transient, in combination with limited sensitivity calculations, it is concluded that TCD has a negligible effect on the limiting cladding temperature transient, leading to an estimated PCT impact of 0°F.

Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2012

WCOBRA/TRAC THERMAL-HYDRAULIC HISTORY FILE DIMENSION USED IN HSDRIVER

Background

A problem was identified in the dimension of the WCOBRA/TRAC thermal-hydraulic history file used in HSDRIVER. The array that is used to store the information from the WCOBRA/TRAC thermal-hydraulic history file is dimensioned to 3000 in HSDRIVER. It is possible for this file to contain more than 3000 curves. If that is the case, it is possible that the curves would not be used correctly in the downstream HOTSPOT execution. An extent-of-condition review indicated that resolution of this issue does not impact the Peak Cladding Temperature (PCT) calculation for prior Large Break Loss-of-Coolant Accident (LBLOCA) analyses. This represents a Discretionary Change in accordance with Section 4.1.1 of WCAP-13451.

Affected Evaluation Model(s)

1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model
1999 Westinghouse Best Estimate Large Break LOCA Evaluation Model for Application to PWRs with Upper Plenum Injection
2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect

As discussed in the Background section, resolution of this issue does not impact the PCT calculation for prior LBLOCA analyses, which leads to a PCT impact of 0°F.

CPNPP Units 1 and 2 Peak Cladding Temperatures

Westinghouse LOCA Peak Clad Temperature Summary for ASTRUM Best Estimate Large Break

Plant Name: Comanche Peak Unit 1
Utility Name: Luminant
Revision Date: 3/1/2013

Analysis Information

EM:	ASTRUM (2004)	**Analysis Date:**	7/27/2007	**Limiting Break Size:**	Guillotine
FQ:	2.5	**FdH:**	1.6		
Fuel:	OFA	**SGTP (%):**	10		
Notes:					

	Clad Temp (^{O}F)	Ref.	Notes
LICENSIS BASIS			
Analysis-Of-Record PCT	1492	1	
PCT Assessments (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1. None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1. None	0		
C. 2012 ECCS MODEL ASSESSMENTS			
1. Evaluation of Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown	122	2	(a)
D. OTHER			
1. None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT = 1614		

References:

1. WCAP-16762-P, Revision 1, "Best-Estimate Analysis of the Large-Break Loss-of-Coolant Accident for the Comanche Peak Nuclear Power Plant Unit 1 Using the ASTRUM Methodology," March 2009.
2. LTR-LIS-12-410, "Comanche Peak Units 1 and 2, 10 CFR 50.46 Notification and Reporting for Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown," September 20, 2012.

Notes:

(a) This evaluation credits peaking factor burndown, see Reference 2.

CPNPP Units 1 and 2 Peak Cladding Temperatures

Westinghouse LOCA Peak Clad Temperature Summary for ASTRUM Best Estimate Large Break

Plant Name: Comanche Peak Unit 1
Utility Name: Luminant
Revision Date: 3/1/2013

Cycle 16

Analysis Information

EM:	ASTRUM (2004)	**Analysis Date:**	7/27/2007	**Limiting Break Size:**	Guillotine
FQ:	2.5	**FdH:**	1.6		
Fuel:	OFA	**SGTP (%):**	10		
Notes:					

		Clad Temp (^{O}F)	Ref.	Notes
LICENSIS BASIS				
Analysis-Of-Record PCT		1492	1	
PCT Assessments (Delta PCT)				
A. PRIOR ECCS MODEL ASSESSMENTS				
1. None		0		
B. PLANNED PLANT MODIFICATION EVALUATIONS				
1. PBOT/PMID Violation		0	2	
C. 2012 ECCS MODEL ASSESSMENTS				
1. Evaluation of Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown		122	3	(a)
D. OTHER				
1. None		0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT =	1614		

References:

1. WCAP-16762-P, Revision 1, "Best-Estimate Analysis of the Large-Break Loss-of-Coolant Accident for the Comanche Peak Nuclear Power Plant Unit 1 Using the ASTRUM Methodology," March 2009.
2. LTR-LIS-11-490, "10 CFR 50.46 Reporting Text for Comanche Peak Unit 1 Cycle 16 PBOT/PMID Violation Evaluation and Revised PCT Rackup Sheets," September 2011.
3. LTR-LIS-12-410, "Comanche Peak Units 1 and 2, 10 CFR 50.46 Notification and Reporting for Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown," September 20, 2012.

Notes:

(a) This evaluation credits peaking factor burndown, see Reference 3.

CPNPP Units 1 and 2 Peak Cladding Temperatures

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Comanche Peak Unit 1
Utility Name: Luminant
Revision Date: 3/1/2013

Analysis Information

EM:	NOTRUMP	**Analysis Date:**	6/8/2007	**Limiting Break Size:**	4 inch
FQ:	2.5	**FdH:**	1.6		
Fuel:	OFA	**SGTP (%):**	10		
Notes:					

	Clad Temp (^{O}F)	Ref.	Notes
LICENSIS BASIS			
Analysis-Of-Record PCT	1013	1	
PCT Assessments (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1. None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1. None	0		
C. 2012 ECCS MODEL ASSESSMENTS			
1. None	0		
D. OTHER			
1. None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT = 1013		

References:

1. WCAP-16840-P, "Comanche Peak Nuclear Power Plant Stretch Power Uprate Licensing Report," August 2007. (Results are included in TXX-07107, "Comanche Peak Steam Electric Station (CPSES), Docket Nos. 50-445 and 50-446, Submittal of the CPSES Units 1 and 2 Large and Small Break LOCA Analyses," July 31, 2007.)

Notes:
None

CPNPP Units 1 and 2 Peak Cladding Temperatures

Westinghouse LOCA Peak Clad Temperature Summary for ASTRUM Best Estimate Large Break

Plant Name: Comanche Peak Unit 2
Utility Name: Luminant
Revision Date: 3/1/2013

Analysis Information

EM:	ASTRUM (2004)	**Analysis Date:**	7/27/2007	**Limiting Break Size:**	Guillotine
FQ:	2.5	**FdH:**	1.6		
Fuel:	OFA	**SGTP (%):**	10		
Notes:					

	Clad Temp (^{O}F)	Ref.	Notes
LICENSIS BASIS			
Analysis-Of-Record PCT	1632	1	
PCT Assessments (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1. None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1. None	0		
C. 2012 ECCS MODEL ASSESSMENTS			
1. Evaluation of Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown	190	2	(a)
D. OTHER			
1. None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT = 1822		

References:

1. WCAP-16763-P, Revision 1, "Best-Estimate Analysis of the Large-Break Loss-of-Coolant Accident for the Comanche Peak Nuclear Power Plant Unit 2 Using the ASTRUM Methodology," March 2009.
2. LTR-LIS-12-410, "Comanche Peak Units 1 and 2, 10 CFR 50.46 Notification and Reporting for Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown," September 20, 2012.

Notes:

(a) This evaluation credits peaking factor burndown, see Reference 2.

CPNPP Units 1 and 2 Peak Cladding Temperatures

Westinghouse LOCA Peak Clad Temperature Summary for ASTRUM Best Estimate Large Break

Plant Name: Comanche Peak Unit 2
Utility Name: Luminant
Revision Date: 3/1/2013

Retired
Cycle 13

Analysis Information

EM:	ASTRUM (2004)	**Analysis Date:**	7/27/2007	**Limiting Break Size:**	Guillotine
FQ:	2.5	**FdH:**	1.6		
Fuel:	OFA	**SGTP (%):**	10		
Notes:					

	Clad Temp (^{O}F)	Ref.	Notes
LICENSIS BASIS			
Analysis-Of-Record PCT	1632	1	
PCT Assessments (Delta PCT)			
A. PRIOR ECCS MODEL ASSESSMENTS			
1. None	0		
B. PLANNED PLANT MODIFICATION EVALUATIONS			
1. PBOT/PMID Evaluation	0	2	
C. 2012 ECCS MODEL ASSESSMENTS			
1. Evaluation of Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown	190	3	(a)
D. OTHER			
1. None	0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT = 1822		

References:

1. WCAP-16763-P, Revision 1, "Best-Estimate Analysis of the Large-Break Loss-of-Coolant Accident for the Comanche Peak Nuclear Power Plant Unit 2 Using the ASTRUM Methodology," March 2009.
2. LTR-LIS-11-204, Revision 1, "10 CFR 50.46 Reporting Text for Comanche Peak Unit 2 Cycle 13 PBOT/PMID Violation Evaluation and Revised PCT Rackup Sheets, Revision 1" April 2011.
3. LTR-LIS-12-410, "Comanche Peak Units 1 and 2, 10 CFR 50.46 Notification and Reporting for Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown," September 20, 2012.

Notes:

(a) This evaluation credits peaking factor burndown, see Reference 3.

CPNPP Units 1 and 2 Peak Cladding Temperatures

Westinghouse LOCA Peak Clad Temperature Summary for ASTRUM Best Estimate Large Break

Plant Name: Comanche Peak Unit 2
Utility Name: Luminant
Revision Date: 3/1/2013

Cycle 14

Analysis Information

EM:	ASTRUM (2004)	**Analysis Date:**	7/27/2007	**Limiting Break Size:**	Guillotine
FQ:	2.5	**FdH:**	1.6		
Fuel:	OFA	**SGTP (%):**	10		
Notes:					

		Clad Temp (^{O}F)	Ref.	Notes
LICENSIS BASIS				
Analysis-Of-Record PCT		1632	1	
PCT Assessments (Delta PCT)				
A. PRIOR ECCS MODEL ASSESSMENTS				
1. None		0		
B. PLANNED PLANT MODIFICATION EVALUATIONS				
1. PBOT/PMID Evaluation		0	2	
C. 2012 ECCS MODEL ASSESSMENTS				
1. Evaluation of Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown		190	3	(a)
D. OTHER				
1. None		0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT =	1822		

References:

1. WCAP-16763-P, Revision 1, "Best-Estimate Analysis of the Large-Break Loss-of-Coolant Accident for the Comanche Peak Nuclear Power Plant Unit 2 Using the ASTRUM Methodology," March 2009.
2. LTR-LIS-12-498, "LBLOCA PCT Rackup Sheet Update for the Evaluation of the Comanche Peak Unit 2 Cycle 14 PBOT/PMID Violations," September 2012.
3. LTR-LIS-12-410, "Comanche Peak Units 1 and 2, 10 CFR 50.46 Notification and Reporting for Fuel Pellet Thermal Conductivity Degradation and Peaking Factor Burndown," September 20, 2012.

Notes:

(a) This evaluation credits peaking factor burndown, see Reference 3.

CPNPP Units 1 and 2 Peak Cladding Temperatures

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Comanche Peak Unit 2
Utility Name: Luminant
Revision Date: 3/1/2013

Analysis Information

EM:	NOTRUMP	**Analysis Date:**	6/8/2007	**Limiting Break Size:**	4 inch
FQ:	2.5	**FdH:**	1.6		
Fuel:	OFA	**SGTP (%):**	10		
Notes:					

		Clad Temp (^{O}F)	Ref.	Notes
LICENSIS BASIS				
Analysis-Of-Record PCT		1210	1	
PCT Assessments (Delta PCT)				
A. PRIOR ECCS MODEL ASSESSMENTS				
1. None		0		
B. PLANNED PLANT MODIFICATION EVALUATIONS				
1. None		0		
C. 2012 ECCS MODEL ASSESSMENTS				
1. None		0		
D. OTHER				
1. None		0		
LICENSING BASIS PCT + PCT ASSESSMENTS	PCT =	1210		

References:

1. WCAP-16840-P, "Comanche Peak Nuclear Power Plant Stretch Power Uprate Licensing Report," August 2007. (Results are included in TXX-07107, "Comanche Peak Steam Electric Station (CPSES), Docket Nos. 50-445 and 50-446, Submittal of the CPSES Units 1 and 2 Large and Small Break LOCA Analyses," July 31, 2007.)

Notes:
None