



Luminant

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Log # TXX-10052

Ref. # 10CFR50.46

March 29, 2010

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

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

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. It was determined that the PCT penalty for Unit 1 Cycle 14 is due to core design characteristics and does not represent a change or error in the Emergency Core Cooling System (ECCS) evaluation model since the most recent CPNPP analyses were approved by the NRC in License Amendment 145 on April 3 of 2008.

Luminant Power has reviewed the notification of 10CFR50.46 reporting information pertaining to the ECCS Evaluation Model changes that were implemented by Westinghouse for 2009. The review concludes that the effect of changes to, or errors in, the Evaluation Models on the limiting transient PCT is not significant for 2009.

Therefore, the report of the ECCS Evaluation Model changes is provided on an annual basis. Attachment 1 provides an assessment of the specific changes and enhancements to the Westinghouse Evaluation Models for 2009. These model changes and enhancements do not have impacts on the PCT.

Attachment 2 provides the calculated Large Break Loss of Coolant Accident (LOCA) and Small Break LOCA PCT margin allocations in effect for the 2009 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 Large Break LOCA analysis of record, combined with all of the PCT allocations, remain well below the 10CFR50.46 regulatory limit of 2200 degrees Fahrenheit. Therefore, Comanche Peak Units 1 and 2 are in compliance with 10CFR50.46 requirements and no reanalysis or other action is required.

A member of the STARS (Strategic Teaming and Resource Sharing) Alliance

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ADD
NRR

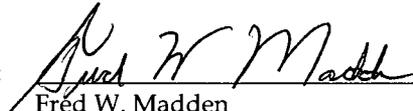
This communication contains no new licensing basis commitments regarding CPNPP Units 1 and 2.

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
Director, Oversight & Regulatory Affairs

- Attachments -
1. Assessment of specific changes and enhancements to the Westinghouse Evaluation Models for 2009
 2. CPNPP Units 1 and 2 Peak Cladding Temperatures

c - E. E. Collins, Region IV
B. K. Singal, NRR
Resident Inspectors, Comanche Peak

1985 WESTINGHOUSE SMALL BREAK LOCA EVALUATION MODEL WITH NOTRUMP

There were no changes, error corrections, or enhancements to the 1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP. Therefore, there is no associated reporting text related to the 1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP for 2009.

GENERAL CODE MAINTENANCE

(Discretionary Change)

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, 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 PCT impact of 0°F.

ERROR IN ASTRUM PROCESSING OF AVERAGE ROD BURNUP AND ROD INTERNAL PRESSURE
(Non-Discretionary Change)

Background

An error was discovered in the processing of the burnup and rod internal pressure inputs for average core rods in ASTRUM analyses. The correction of this error has been evaluated for impact on current licensing-basis analyses and will be incorporated into the ASTRUM method at a future time. 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)

2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect

This error was evaluated to have a negligible impact on PCT, leading to an estimated impact of 0°F for 10 CFR 50.46 reporting purposes.

**DISCREPANCY IN METAL MASSES USED FROM DRAWINGS
(Non-Discretionary Change)**

DISCREPANCY IN METAL MASSES USED FROM DRAWINGS
Non-Discretionary Change

Background

Discrepancies were discovered in the use of lower support plate (LSP) metal masses from drawings. The updated LSP metal masses have been evaluated for impact on current licensing-basis analysis results and will be incorporated on a forward-fit basis. This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

Affected Evaluation Model(s)

SECY UPI WCOBRA/TRAC Large Break LOCA Evaluation Model
1996 Westinghouse Best Estimate Large Break LOCA Evaluation Model
1999 Westinghouse Best Estimate Large Break LOCA Evaluation Model, Application to PWRs with Upper Plenum Injection
2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect

The lower support plate mass error is relatively minor and would be expected to have a negligible effect on the Large Break LOCA analysis results, leading to an estimated PCT impact of 0°F for 10 CFR 50.46 reporting purposes.

HOTSPOT GAP HEAT TRANSFER LOGIC (Non-Discretionary Change)

Background

The HOTSPOT code has been updated to incorporate the following changes to the gap heat transfer logic: (1) change the gap temperature from the pellet average temperature to the average of the pellet outer surface and cladding inner surface temperatures; (2) correct the calculation of the pellet surface emissivity to use a temperature in °R (as specified in Equation 7-28 of Reference 1) instead of °F; and (3) revise the calculation of the gap radiation heat transfer coefficient to delete a term and temperature adder not shown in or suggested by Equation 7-28 of Reference 1. 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, Application to PWRs with Upper Plenum Injection

2004 Westinghouse Realistic Large Break LOCA Evaluation Model Using ASTRUM

Estimated Effect

Sample calculations showed a minimal impact on PCT, leading to an estimated effect of 0°F.

Reference(s)

1. WCAP-12945-P-A, Volume 1, Revision 2, "Code Qualification Document for Best Estimate LOCA Analysis, Volume I: Models and Correlations," March 1998.

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

Plant Name: Comanche Peak Unit 1
Utility Name: Luminant
Revision Date: 1/27/10

Analysis Information

| | | | | | |
|---------------|---------------|-----------------------|---------|-----------------------------|------------|
| EM: | ASTRUM (2004) | Analysis Date: | 7/27/07 | Limiting Break Size: | Guillotine |
| FQ: | 2.5 | FdH: | 1.6 | | |
| Fuel: | OFA | SGTP(%): | 10 | | |
| Notes: | | | | | |

| | Clad Temp(°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. Reconstituted Fuel Evaluation for Cycle 14 | 0 | 2 | |
| 2. PBOT & PMID Evaluation for Cycle 14 | 32 | 2 | |
| C. 2009 ECCS MODEL ASSESSMENTS | | | |
| 1. None | 0 | | |
| D. OTHER | | | |
| 1. None | 0 | | |
| LICENSING BASIS PCT + PCT ASSESSMENTS | | | |
| | | PCT = | 1524 |

References:

1. WCAP-16762-P, "Best-Estimate Analysis of the Large-Break Loss-of-Coolant Accident for Comanche Peak Unit 1 Nuclear Plant Using the ASTRUM Methodology," July 2007.
2. LTR-LIS-08-649, "Transmittal of Updated Comanche Peak PCT Summary Sheets," September 2008.

Notes:

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Comanche Peak Unit 1
Utility Name: Luminant
Revision Date: 1/27/10

Analysis Information

EM: NOTRUMP **Analysis Date:** 6/8/07 **Limiting Break Size:** 4 inch
FQ: 2.5 **FdH:** 1.6
Fuel: OFA **SGTP(%):** 10

Notes:

| | Clad Temp(°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. Reconstituted Fuel Evaluation for Cycle 14 | 0 | 2 | |
| C. 2009 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.)
2. LTR-LIS-08-649, "Transmittal of Updated Comanche Peak PCT Summary Sheets," September 2008.

Notes:

None

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

Plant Name: Comanche Peak Unit 2
Utility Name: Luminant
Revision Date: 1/27/10

Analysis Information

EM: ASTRUM (2004) **Analysis Date:** 7/27/07 **Limiting Break Size:** Guillotine
FQ: 2.5 **FdH:** 1.6
Fuel: OFA **SGTP(%):** 10

Notes:

| | Clad Temp(°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 for Cycle 11 | 0 | 2 | |
| C. 2009 ECCS MODEL ASSESSMENTS | | | |
| 1. None | 0 | | |
| D. OTHER | | | |
| 1. None | 0 | | |
| LICENSING BASIS PCT + PCT ASSESSMENTS | PCT = 1632 | | |

References:

1. WCAP-16762-P, "Best-Estimate Analysis of the Large-Break Loss-of-Coolant Accident for Comanche Peak Unit 1 Nuclear Plant Using the ASTRUM Methodology," July 2007.
2. LTR-LIS-08-649, "Transmittal of Updated Comanche Peak PCT Summary Sheets," September 2008.

Notes:

Westinghouse LOCA Peak Clad Temperature Summary for Appendix K Small Break

Plant Name: Comanche Peak Unit 2
Utility Name: Luminant
Revision Date: 1/27/10

Analysis Information

EM: NOTRUMP **Analysis Date:** 6/8/07 **Limiting Break Size:** 4 inch
FQ: 2.5 **FdH:** 1.6
Fuel: OFA **SGTP(%):** 10

Notes:

| | Clad Temp(°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. 2009 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