

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

Richard A. Muench  
Vice President Engineering

MAR 17 1999

ET 99-0013

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

Subject: Docket No. 50-482: 10 CFR 50.46 Annual Report of  
ECCS Model Changes

Gentlemen:

This letter provides the annual report for the Emergency Core Cooling System (ECCS) Evaluation Model changes and errors for the 1998 model year that effect the Peak Cladding Temperature (PCT) for the Wolf Creek Generating Station (WCGS). This letter is provided in accordance with the criteria and reporting requirements of 10 CFR 50.46(a)(3)(ii), as clarified in Section 5.1 of WCAP-13451, "Westinghouse Methodology for Implementation of 10 CFR 50.46 Reporting." Regulation 10 CFR 50.46(a)(3)(ii) states, in part, "For each change to or error discovered in an acceptable evaluation model or in the application of such a model that affects the temperature calculation, the applicant or licensee shall report the nature of the change or error and its estimated effect on the limiting ECCS analysis to the Commission at least annually as specified in §50.4. If the change or error is significant, the applicant or licensee shall provide this report within 30 days and include with the report a proposed schedule for providing a reanalysis or taking other action as may be needed to show compliance with §50.46 requirements."

Wolf Creek Nuclear Operating Corporation (WCNOC) has reviewed the annual 10 CFR 50.46 summary report of ECCS Evaluation Model changes that were implemented by Westinghouse during 1998. The report (Westinghouse to WCNOC letter 99-99-114 dated March 5, 1999) concludes that there are no reportable Peak Clad Temperature (PCT) impacts for the NOTRUMP and BASH evaluation model analyses associated with the WCGS for 1998.

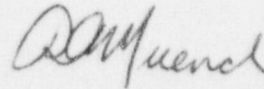
Attachment 1 provides the calculated Large Break LOCA and Small Break LOCA PCT margin allocations in effect for the 1998 WCGS evaluation models. The PCT values determined in the Small Break and Large Break LOCA analyses of record, combined with all the PCT margin allocations, remain well below the 10 CFR 50.46 regulatory limit of 2200 degrees Fahrenheit. Therefore, WCGS is in compliance with §50.46 requirements and no reanalysis or any other action is required.

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Attachment 2 provides a summary of actions committed to by WCNO in this document.

If you have any questions concerning this matter, please call me at (316) 364-4034, or Mr. Michael J. Angus at (316) 364-4077.

Very truly yours,

A handwritten signature in cursive script, appearing to read "R. Muench".

Richard A. Muench

RAM/rlr

Attachments

cc: W. D. Johnson (NRC), w/a  
E. W. Merschoff (NRC), w/a  
K. M. Thomas (NRC), w/a  
Senior Resident Inspector (NRC), w/a

ATTACHMENT 1

ECCS EVALUATION MODEL  
PEAK CLAD TEMPERATURE (PCT)  
MARGIN ASSESSMENTS



\*\*\* SMALL BREAK PEAK CLAD TEMPERATURE (PCT) MARGIN UTILIZATION \*\*\*

Evaluation Model:	1985 EM with NOTRUMP
Fuel:	17X17 V5H w/IFM, non-IFBA 275 psig
Peaking Factor:	FQ=2.50, F <sub>dH</sub> =1.65
SG Tube Plugging:	10%
Power Level:	3565 MW <sub>th</sub>
Limiting transient:	3-inch Break

A. ANALYSIS OF RECORD (Rerating 8/92)

Peak Cladding Temperature (PCT): 1510°F (1)

B. PRIOR PERMANENT ECCS MODEL ASSESSMENTS  $\Delta$ PCT = 31°F (2)

C. 10 CFR 50.59 SAFETY EVALUATIONS

1. Loose Parts	$\Delta$ PCT = 45°F (3)
2. Cycle 10 Fuel Assembly Design Changes	$\Delta$ PCT = 1°F (6)
3. Reduced Feedwater Inlet Temperature	$\Delta$ PCT = 10°F (4)
4. Fuel Rod Crud	$\Delta$ PCT = 4°F (5)

TOTAL 10 CFR 50.59 SMALL BREAK ASSESSMENTS  $\Delta$ PCT = 60°F

D. 1998 10 CFR 50.46 MODEL ASSESSMENTS  
(Permanent Assessment of PCT Margin)

1. None  $\Delta$ PCT = 0°F

E. TEMPORARY ECCS MODEL ISSUES

1. None  $\Delta$ PCT = 0°F

F. OTHER MARGIN ALLOCATIONS

1. Cold Leg Streaming Temperature Gradient  $\Delta$ PCT = 7°F (7)

LICENSING BASIS PCT + MARGIN ALLOCATIONS PCT = 1608°F

Notes:

1. Westinghouse Topical Report WCAP-13456, "Wolf Creek Generating Station NSSS Rerating Licensing Report," October 1992.
2. Westinghouse to WCNOC letter SAP-98-115, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, 10 CFR 50.46 Notification and Reporting for 1997," February 27, 1998.
3. Westinghouse to WCNOC letter SAP-90-148, "Wolf Creek Nuclear Operating Corporation, RCS Loose Parts Evaluation," April 18, 1990.
4. Westinghouse to WCNOC letter SAP-96-119, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, Small Break LOCA Evaluation for Reduced Feedwater Temperature," May 30, 1996.
5. Westinghouse to WCNOC letter 97SAP-G-0075, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, Wolf Creek Crud Deposition/Accretion Offset Anomaly Safety Evaluation," September 29, 1997. (This penalty will be carried until such time it is determined to no longer apply).
6. Westinghouse to WCNOC letter 97SAP-G-0009, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, Safety Assessment for the Wolf Creek Generating Station with ZIRLO™ Fuel Assemblies," February 7, 1997.
7. Westinghouse to WCNOC letter SAP-93-701, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, 10 CFR 50.46 Notification and Reporting Information," January 25, 1993.

\*\*\* LARGE BREAK LOCA PEAK CLAD TEMPERATURE (PCT) MARGIN UTILIZATION \*\*\*

Evaluation Model:	1981 EM with BASH
Fuel:	17X17 V5H w/IFM, non-IFBA 275 psig
Peaking Factor:	FQ=2.50, F <sub>dH</sub> 55
SG Tube Plugging:	10%
Power Level:	3565 MW <sub>th</sub>
Limiting transient:	C <sub>D</sub> =0.4, Min. SI, Reduced T <sub>avg</sub>

A. ANALYSIS OF RECORD (Rerating 8/92)

Peak Cladding Temperature (PCT): 1916°F (1)

B. PRIOR PERMANENT ECCS MODEL ASSESSMENTS  $\Delta$ PCT = 0°F (2)

C. 10 CFR 50.59 SAFETY EVALUATIONS

1. Loose Parts	$\Delta$ PCT = 20°F (3)
2. Containment Purge Evaluation	$\Delta$ PCT = 0°F (4)
3. Cycle 10 Fuel Assembly Design Changes	$\Delta$ PCT = 95°F (5)
4. Fuel Rod Crud	$\Delta$ PCT = 0°F (6)

TOTAL 10 CFR 50.59 LARGE BREAK ASSESSMENTS  $\Delta$ PCT = 115°F

D. 1998 10 CFR 50.46 MODEL ASSESSMENTS  
(Permanent Assessment of PCT Margin)

1. None  $\Delta$ PCT = 0°F

E. TEMPORARY ECCS MODEL ISSUES  $\Delta$ PCT = 0°F

F. OTHER MARGIN ALLOCATIONS

1. Transition Core (STD to V5H)	$\Delta$ PCT = 50°F (7)
2. Cold Leg Streaming Temperature Gradient	$\Delta$ PCT = 0°F (8)

LICENSING BASIS PCT + MARGIN ALLOCATIONS PCT = 2081°F

Notes:

- Westinghouse Topical Report WCAP-13456, "Wolf Creek Generating Station NSSS Rerating Licensing Report," October 1992.
- Westinghouse to WCNOC letter SAP-98-115, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, 10 CFR 50.46 Notification and Reporting for 1997," February 27, 1998.
- Westinghouse to WCNOC letter SAP-90-148, "Wolf Creek Nuclear Operating Corporation, RCS Loose Parts Evaluation," April 18, 1998.
- Westinghouse to WCNOC letter SAP-94-102, "Containment Mini purge Isolation Valve Stroke Time Increase," January 12, 1994.
- Westinghouse to WCNOC letter 97SAP-G-0009, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, Safety Assessment for the Wolf Creek Generating Station with ZIRLO™ Fuel Assemblies," February 7, 1997.
- Westinghouse to WCNOC letter 97SAP-G-0075, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, Wolf Creek Crud Deposition/Axial Offset Anomaly Safety Evaluation," September 29, 1997. (This penalty will be carried until such time it is determined to no longer apply).
- Westinghouse to WCNOC letter SAP-93-111, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, LOCA PCT Summary Sheets," April 14, 1993. (Transition core penalty applies on a cycle-specific basis for reloads utilizing both V5H (with IFMs) and STD fuel until a full core of V5H is achieved).
- Westinghouse to WCNOC letter SAP-93-701, "Wolf Creek Nuclear Operating Corporation, Wolf Creek Generating Station, 10 CFR 50.46 Notification and Reporting Information," January 25, 1993. [A PCT benefit of 2.5 degrees Fahrenheit was assessed; however, a benefit of zero (0) degrees Fahrenheit will be tracked for reporting purposes].

## LIST OF COMMITMENTS

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation (WCNOC) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Michael J. Angus, Manager Licensing and Corrective Action at Wolf Creek Generating Station, (316) 364-4077.

COMMITMENT	Due Date/Event
None	N/A