

March 9, 2006

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington, DC 20555-0001

ULNRC-05260

Ladies and Gentlemen:

**DOCKET NUMBER 50-483
CALLAWAY PLANT
UNION ELECTRIC COMPANY
10 CFR 50.46 ANNUAL REPORT
ECCS EVALUATION MODEL REVISIONS**



Attachment 1 to this letter describes changes to the Westinghouse ECCS Large Break and Small Break Loss of Coolant Accident (LOCA) Evaluation Models which have been implemented for Callaway during the time period from March 2005 to March 2006. Attachment 2 provides an ECCS Evaluation Model Margin Assessment which accounts for all peak cladding temperature (PCT) changes resulting from the resolution of prior issues as they apply to Callaway. There are no PCT changes since the current Large Break and Small Break LOCA analyses became effective on November 1, 2005 with the implementation of License Amendment 168 for the replacement steam generators. References 1-3, listed below, include the replacement steam generator license amendment request (which addressed the Large Break and Small Break LOCA reanalyses in Section 6.2 of Appendix A), responses to requests for additional information (RAIs) from the NRC Reactor Systems Branch which slightly raised the Large Break LOCA PCT value (in the responses to RAIs #16.c and #17), and additional information in response to RAI #45 on non-integer break sizes for Small Break LOCA. The issue described in Reference 3 for RAI #45 is still being discussed between NRC and Westinghouse and there is no additional information at this time.

The Large Break and Small Break LOCA tables included in Attachment 2 remain unchanged from those discussed in References 1-3 and are enclosed here for completeness only. The PCT values determined in the Large Break and Small Break LOCA analyses of record, when combined with all PCT margin allocations, remain below the 2200°F regulatory limit. As such, no reanalysis is planned by AmerenUE.

A001

ULNRC-05260

March 9, 2006

Page 2

This letter does not contain any new commitments. If you have any questions on this report, please contact Mr. Keith Young at (573) 676-8659 or Mr. Dave Shafer at (314) 554-3104.

Sincerely,

A handwritten signature in black ink, appearing to read 'Fadi M. Diya', with a stylized, cursive script.

Fadi M. Diya
Manager-Engineering Services

KAM/GGY

Attachments

- References:
- 1) ULNRC-05056 dated 9-17-04
 - 2) ULNRC-05159 dated 6-17-05
 - 3) ULNRC-05178 dated 7-29-05

ULNRC-05260

March 9, 2006

Page 3

cc:

U.S. Nuclear Regulatory Commission (Original and 1 copy)

Attn: Document Control Desk

Mail Stop P1-137

Washington, DC 20555-0001

Mr. Bruce S. Mallett

Regional Administrator

U.S. Nuclear Regulatory Commission

Region IV

611 Ryan Plaza Drive, Suite 400

Arlington, TX 76011-4005

Senior Resident Inspector

Callaway Resident Office

U.S. Nuclear Regulatory Commission

8201 NRC Road

Steedman, MO 65077

Mr. Jack N. Donohew (2 copies)

Licensing Project Manager, Callaway Plant

Office of Nuclear Reactor Regulation

U. S. Nuclear Regulatory Commission

Mail Stop O-7D1

Washington, DC 20555-2738

Missouri Public Service Commission

Governor Office Building

200 Madison Street

P.O. Box 360

Jefferson City, MO 65102-0360

Deputy Director

Department of Natural Resources

P.O. Box 176

Jefferson City, MO 65102

ATTACHMENT ONE

CHANGES TO THE WESTINGHOUSE

ECCS EVALUATION MODEL

AND PCT PENALTY ASSESSMENTS

TABLE OF CONTENTS

1. Pressurizer Fluid Volumes
2. Lower Guide Tube Assembly Weight
3. Discrepancy in NOTRUMP RWST Draindown Calculation
4. General Code Maintenance

1. PRESSURIZER FLUID VOLUMES

Westinghouse recommends that the previously used pressurizer fluid volume analysis inputs be replaced with nominal cold values. This change resolves a discrepancy in the prior calculations while providing a close approximation of the actual as-built values. The revised values have been evaluated for impact on current licensing-basis analyses and will be incorporated into the plant-specific input databases on a forward-fit basis. This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

The differences between the previously used and revised volumes are very small and would be expected to produce a negligible effect on large and small break LOCA analysis results, leading to an estimated PCT impact of 0°F for 10 CFR 50.46 reporting purposes.

2. LOWER GUIDE TUBE ASSEMBLY WEIGHT

An error was discovered in the lower guide tube assembly weight for three units which resulted in a small over-estimation of the upper plenum metal mass. The corrected values have been evaluated for impact on current licensing-basis analyses and will be incorporated into the plant-specific input databases on a forward-fit basis. This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

The differences in upper plenum metal mass are very small and would be expected to produce a negligible effect on large and small break LOCA analysis results, leading to an estimated PCT impact of 0°F for 10 CFR 50.46 reporting purposes.

3. DISCREPANCY IN NOTRUMP RWST DRAINDOWN CALCULATION

For small break LOCA calculations where the break size is greater than the safety injection (SI) line diameter, and where the SI line is connected directly to the reactor coolant system (RCS), it is assumed that the broken loop safety injection flows do not inject to the RCS, but rather spill to containment. Typically, this is modeled in NOTRUMP-EM analyses by setting the flows injected to the broken loop equal to zero, which neglects the continued depletion of the refueling water storage tank (RWST) inventory. As a result, the RWST draindown time is incorrectly calculated, potentially resulting in an inaccurate modeling of enthalpy changes and/or SI interruptions that can occur at switchover to sump recirculation. Therefore, the SI spilling flows need to be explicitly modeled in order to correctly calculate the RWST draindown time. This change represents a Non-Discretionary Change in accordance with Section 4.1.2 of WCAP-13451.

For Westinghouse plants using the NOTRUMP-EM, the larger small breaks are typically non-limiting and the transients are of short duration. Therefore, correct modeling of the spilling flows in the RWST draindown calculation for these breaks would be expected to produce a negligible effect on SBLOCA results, leading to an estimated PCT impact of 0°F for 10 CFR 50.46 reporting purposes.

4. GENERAL CODE MAINTENANCE

Various changes in code input and output format have been made to enhance usability and help preclude errors in analyses. This includes both input changes (e.g., more relevant input variables defined and more common input values used as defaults) and input diagnostics designed to preclude unreasonable values from being used, as well as various changes to code output which have no effect on calculated results. In addition, various updates were made to eliminate inactive coding, improve active coding, and enhance commenting, both for enhanced usability and to facilitate code debugging when necessary. These changes represent Discretionary Changes that will be implemented on a forward-fit basis in accordance with Section 4.1.1 of WCAP-13451.

The nature of these changes leads to an estimated PCT impact of 0°F on large and small break LOCA analysis results for 10 CFR 50.46 reporting purposes.

ATTACHMENT TWO

ECCS EVALUATION MODEL

MARGIN ASSESSMENT FOR CALLAWAY

LARGE BREAK LOCA

A. ANALYSIS OF RECORD (AOR) PCT = 1939°F

B. CURRENT LOCA MODEL ASSESSMENTS - + 0°F
March 2006

LICENSING BASIS PCT + MARGIN ALLOCATIONS 1939°F

ABSOLUTE MAGNITUDE OF MARGIN ALLOCATIONS 0°F
SINCE LAST LBLOCA 30-DAY REPORT

SMALL BREAK LOCA

- | | | |
|----|--|--------------|
| A. | ANALYSIS OF RECORD (AOR) | PCT = 1043°F |
| B. | CURRENT LOCA MODEL ASSESSMENTS -
March 2006 | + 0°F |
-

LICENSING BASIS PCT + MARGIN ALLOCATIONS	1043°F
--	--------

ABSOLUTE MAGNITUDE OF MARGIN ALLOCATIONS SINCE LAST SBLOCA 30-DAY REPORT	0°F
---	-----