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Millstone Power Station
Rope Ferry Road
Waterford, CT 06385

Dominion

APR 2 2003

Docket No. 50-423
B18867

RE: 10 CFR 50.46(a)(3)(ii)

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

Millstone Power Station, Unit No. 3
2002 Annual Reporting of Changes to and Errors in
Emergency Core Cooling System Models or Applications

In accordance with 10 CFR 50.46(a)(3)(ii), Dominion Nuclear Connecticut, Inc. (DNC) hereby submits the annual summary of changes to, and errors identified in, the emergency core cooling system (ECCS) evaluation models or applications of those models for Millstone Unit No. 3.

Attachment 1 transmits the annual report for the period January 2002 through December 2002. The following is a synopsis of the information provided in Attachment 1.

1. In a notification dated June 20, 2002, Westinghouse identified a LOCBART Radiation to Liquid Logic Error Correction in the large break loss of coolant accident (LBLOCA) ECCS Evaluation model which was evaluated to have a peak cladding temperature (PCT) impact of +17°F. Since this error was corrected in the re-baseline analysis described below, it is not included in the LBLOCA margin utilization sheet.

2. In a notification dated December 20, 2002, Westinghouse provided the results of a partial reanalysis of the limiting LBLOCA using the latest BASH-EM code versions, and incorporated several items from the current LBLOCA PCT Margin Utilization sheet. Westinghouse developed a method to extend the BASH-EM beyond the point at which downcomer boiling is predicted to occur in BASH by correlating the boiling-induced reduction in downcomer driving head to a corresponding reduction in the core flooding rate. This is referred to as the LOCBART transient extension method. Westinghouse is submitting the LOCBART transient extension method to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. For cases where transient termination can be demonstrated prior to downcomer boiling, no further action is considered necessary. For Millstone Unit No. 3, the PCT occurred prior to downcomer boiling, thus, there is no PCT penalty for Millstone Unit No. 3 associated with this issue.

   Westinghouse performed plant specific analyses rather than use their evaluation process to assess the impact of the LOCBART transient extension method. As a result, Westinghouse re-baselined the Millstone Unit No. 3 LBLOCA analysis of record (AOR) by incorporating all the previously identified model changes as well

A001

as some changes in input parameters not associated with the Evaluation Methodology. The re-baseline analysis resulted in a PCT of 2004°F.

Specifically, the re-baseline analysis addressed the following previously identified changes, errors, and planned plant change evaluations:

The analysis-of-record (AOR) PCT of 1974°F remained unchanged. The following items were removed due to the use of a corrected LOCBART version:

A.1: LOCBART Spacer Grid Single-Phase Heat Transfer Error, LOCBART Zirc-Water Oxidation Error and LOCBART Reanalysis of Limiting AOR Case (+41°F)

A.2: LOCBART Vapor Film Flow Regime Heat Transfer Error (+9°F)

A.3: LOCBART Dispersed Flow Regime Wall Emissivity Error (-12°F)

A.4: LOCBART Cladding Emissivity Errors (+6°F)

C.1: LOCBART Radiation to Liquid Logic Error Correction (+17°F)

The following items were removed due to incorporation in the partial reanalysis:

B.1: Increased Pressurizer Pressure Uncertainty (+1°F)

B.2: ZIRLO Cladding Evaluation (+6°F)

B.4: Reduced Thermal Design Flow (+12°F)

B.7: Robust Fuel Assembly Fuel Features (+48°F)

E.1: Rebaseline of AOR (+22°F)

The following item was removed, since this change has been re-evaluated as having a negligible effect on results:

B.3: Reactor Vessel Flange Radiation Shield (+1°F)

The following items were removed since they are not currently used:

B.5: Fuel Reconstitution (+1°F)

B.6: Revised T-hot Average Scaling (+7°F)

The following item was added to reflect the difference in PCT between the re-baseline analysis (2004°F) and the AOR (1974°F):

E.1: Rebaseline of AOR (+30°F)

The LBLOCA PCT Margin Utilization Sheet provided in Attachment 1 reflects these results.

3. Westinghouse identified the following errors or changes in the ECCS Evaluation models, applicable to Millstone Unit No. 3. Each was evaluated to have a PCT impact of 0°F:

   a. LOCBART ZIRLO Cladding Specific Heat Model
   b. BASHER Calculation of Flow Link Inputs
   c. LOCBART Pellet-to-Cladding Gap Conductance Model
   d. LOCBART Time Step Selection Logic
   e. LOCBART Cladding Surface Heat Transfer Logic
   f. LOCBART ZIRLO Cladding Creep Constants
   g. SBLOCTA Time Step Selection Logic
   h. SBLOCTA ZIRLO Cladding Specific Heat Model
   i. Simplified Isothermal Solution for SBLOCTA Subroutine RATE
   j. General Code Maintenance

   Since these errors or changes have a PCT impact of 0°F, they will not be shown on the Margin Utilization Sheets provided in Attachment 1.

Considering the changes summarized in Attachment 1, the corrected PCTs for the limiting Small Break Loss of Coolant Accident (SBLOCA) (2106°F) and LBLOCA (2004°F) remain below the 2200°F limit as defined by 10 CFR 50.46(b)(1).

This information satisfies the 2002 annual reporting requirements of 10CFR50.46(a)(3)(ii). In addition, no reanalysis or other actions are necessary to demonstrate compliance with 10 CFR 50.46 requirements.

There are no regulatory commitments contained within this letter.

If you should have any questions concerning this submittal, please contact Mr. Ravi Joshi at (860) 440-2080.

Very truly yours,

DOMINION NUCLEAR CONNECTICUT, INC.

J. Alan Price
Site Vice President - Millstone

cc: See next page

Attachment (1)

cc: H. J. Miller, Region I Administrator
V. Nerses, NRC Project Manager, Millstone Unit No. 3
Millstone Senior Resident Inspector

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Attachment 1

Millstone Power Station, Unit No. 3

2002 Annual Reporting of 10 CFR 50.46 Margin Utilization

10 CFR 50.46 Margin Utilization
Small Break Loss of Coolant Accident (SBLOCA)

Plant Name:	Millstone Unit No. 3		
Utility Name:	Dominion Nuclear Connecticut, Inc.		
Analysis Information			
EM:	NOTRUMP	**Limiting Break Size:**	3 Inches
Analysis Date:	06/90		
FQ:	2.6	**FΔH:**	1.7
Fuel:	Vantage 5H	**SGTP (%):**	10
Notes:	None		

		Clad Temp (°F)	Notes
LICENSING BASIS			
	Analysis of Record PCT	1891	
MARGIN ALLOCATIONS (Delta PCT)			
A.	**Prior Permanent ECCS Model Assessments**		
1.	ECCS Evaluation Model Changes	27	
2.	Effect of SI in Broken Loop	150	
3.	Effect of Improved COSI (Condensation Model)	-150	
4.	Drift Flux Flow Regime Errors	-13	
5.	Average Rod Burst Strain Limit	14	
6.	Fuel Rod Burst Strain Limit	-14	
7.	LUCIFER Error Corrections	-16	
8.	Boiling Heat Transfer Correlation Error	-6	
9.	Steam Line Isolation Logic Error	18	
10.	Axial Nodalization, RIP Model Revision, and SBLOCTA Error Corrections Analysis	26	
11.	NOTRUMP Specific Enthalpy Error	20	
12.	SBLOCTA Fuel Rod Initialization Error	10	
13.	MSSV 3% Setpoint Uncertainty Analysis	67	
14.	AFW Purge Volume Error	17	
15.	NOTRUMP Mixture Level Tracking/Region Depletion Errors	13	
B.	**Planned Plant Change Evaluations**		
1.	Increased Pressurizer Pressure Uncertainty	14	
2.	ZIRLO™ Cladding Evaluation	24	
3.	Fuel Rod Crud	2	
4.	Reduced Thermal Design Flow	12	
5.	Fuel Reconstitution	1	
6.	Revised T-hot Average Scaling	2	
C.	**2002 Permanent ECCS Model Assessments**		
1.	None	0	
D.	**Temporary ECCS Model Issues**		
1.	None	0	

10 CFR 50.46 Margin Utilization
Small Break Loss of Coolant Accident (SBLOCA)

		Clad Temp (°F)	Notes
E.	**Other Margin Allocations**		
1.	Burst and Blockage/Time in Life	183	(1), (3)
2.	Axial Offset Decrease to +20%	-135	
3.	Margin Recovery Benefit	-51	(2)
LICENSING BASIS PCT + MARGIN ALLOCATIONS		**PCT = 2106**	

Notes:

(1) This assessment is a function of Base PCT plus permanent margin allocation and as such will increase/decrease with margin allocation changes.

(2) Margin Recovery Benefit based in part on plant-specific Peak Cladding Temperature calculations that identify margin in Model Assessments and Planned Plant Change Evaluations reported in Sections "A" and "B".

(3) Value includes previous Burst and Blockage/Time in Life penalty, SPIKE Correlation Revision penalty (1999 Annual Report), and consideration of new penalty due to Item A.15 (NOTRUMP Mixture Level Tracking/Region Depletion Errors).

10 CFR 50.46 Margin Utilization
Large Break Loss of Coolant Accident (LBLOCA)

Plant Name:	Millstone Unit No. 3		
Utility Name:	Dominion Nuclear Connecticut, Inc.		
Analysis Information			
EM:	BASH	**Limiting Break Size:**	Cd=0.6
Analysis Date:	08/90		
FQ:	2.6	**FΔH:**	1.7
Fuel:	Vantage 5H	**SGTP (%):**	10
Notes:	VH5/RFA		

	Clad Temp (°F)	Notes
LICENSING BASIS		
Analysis of Record (AOR) PCT	1974	
MARGIN ALLOCATIONS (Delta PCT)		
A. Prior Permanent ECCS Model Assessments		
1. None	0	
B. Planned Plant Change Evaluations		
1. None	0	
C. 2002 Permanent ECCS Model Assessments		
1. None	0	
D. Temporary ECCS Model Issues		
1. None	0	
E. Other Margin Allocations		
1. Rebaseline of AOR	30	
LICENSING BASIS PCT + MARGIN ALLOCATIONS	**PCT = 2004**	