

DEC 29 2005

L-PI-05-116  
10 CFR 50.46

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

Prairie Island Nuclear Generating Plant Units 1 and 2  
Dockets 50-282 and 50-306  
License Nos. DPR-42 and DPR-60

Corrections to Emergency Core Cooling System (ECCS) Evaluation Models

- References: (1) Letter dated March 2, 2005, "Prairie Island Nuclear Generating Plant, Units 1 and 2 – Corrections to Emergency Core Cooling System (ECCS) Evaluation Models Re: (TAC No. MC4643 and MC4644) from the Nuclear Regulatory Commission (NRC) to the Nuclear Management Company, LLC (NMC)
- (2) Letter L-PI-05-079, dated August 30, 2005, "Prairie Island Nuclear Generating Plant, Units 1 and 2 – Corrections to Emergency Core Cooling System (ECCS) Evaluation Models," from NMC to NRC
- (3) Letter L-PI-04-131, dated December 14, 2004, "Prairie Island Nuclear Generating Plant Unit 1 – Corrections to Emergency Core Cooling System (ECCS) Evaluation Models," from NMC to NRC
- (4) Letter L-PI-04-097, dated August 5, 2004, "Prairie Island Nuclear Generating Plant, Units 1 and 2 – Corrections to Emergency Core Cooling System (ECCS) Evaluation Models,"

Enclosed please find Attachment 1, "Westinghouse LOCA (loss of coolant accident) Evaluation Model Changes," which is the 2004 annual report of corrections to the Prairie Island Nuclear Generating Plant (PINGP) Units 1 and 2 ECCS Evaluation Models. This report is submitted in accordance with the provisions of 10 CFR 50, Section 50.46 and summarizes changes made to both the large break LOCA (LBLOCA) and small break LOCA (SBLOCA) analyses.

Note that a 30-day report was submitted in August 2005 (Reference 2) that included changes/errors made to the LBLOCA evaluation models in 2004. Two additional model changes (with zero peak clad temperature (PCT) impact) have not been previously reported and are described in Attachment 1.

The SBLOCA PCT Assessment Sheets for Unit 1 and Unit 2 are enclosed as Attachment 2. The LBLOCA Assessment Sheets are not included because the PCT Assessments applicable to 2004 were included in Reference 2.

There have been no PCT impacts on Unit 1 or Unit 2 LBLOCA analyses since those reported in Reference 2. There have been no PCT impacts on Unit 1 SBLOCA since those reported in Reference 3. There have been no PCT impacts on Unit 2 SBLOCA since those reported in Reference 4.

NMC has committed by letter to provide a new LBLOCA evaluation model for PINGP by March 31, 2006. The NRC found this schedule acceptable (Reference 1).

Neither Attachment 1 nor Attachment 2 need be withheld from public disclosure.

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.



Thomas J. Palmisano  
Site Vice President, Prairie Island Nuclear Generating Plant  
Nuclear Management Company, LLC

Enclosures (2)

cc: Administrator, Region III, USNRC  
Project Manager, Prairie Island, USNRC  
Resident Inspector, Prairie Island, USNRC

**ATTACHMENT 1**

**NUCLEAR MANAGEMENT COMPANY, LLC  
PRAIRIE ISLAND NUCLEAR GENERATING PLANT  
DOCKET NOS 50-282 AND 50-306**

Westinghouse LOCA Evaluation Model Changes

3 Pages follow

**Non-Discretionary Changes with No PCT Impact**

Reactor Coolant Pump Reference Conditions

**Enhancements/Forward-Fit Discretionary Changes**

General Code Maintenance (NOTRUMP)

## **REACTOR COOLANT PUMP REFERENCE CONDITIONS**

### Background

Various discrepancies were identified in the reference conditions used with the reactor coolant pump homologous curves. The differences were evaluated for impact on current licensing-basis analysis results and will be incorporated into the plant-specific input databases 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 Models

1981 Westinghouse Large Break LOCA Evaluation Model with BASH  
1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

### Estimated Effect

The identified discrepancies were evaluated as having a negligible effect on analysis results and will be assigned a 0°F PCT impact for 10 CFR 50.46 reporting purposes.

## **GENERAL CODE MAINTENANCE (NOTRUMP)**

### Background

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.

### Affected Evaluation Models

1981 Westinghouse Large Break LOCA Evaluation Model with BASH  
1985 Westinghouse Small Break LOCA Evaluation Model with NOTRUMP

### Estimated Effect

The nature of these changes leads to an estimated PCT impact of 0°F.

**ATTACHMENT 2**

**NUCLEAR MANAGEMENT COMPANY, LLC  
PRAIRIE ISLAND NUCLEAR GENERATING PLANT  
DOCKET NOS 50-282 AND 50-306**

SBLOCA Peak Clad Temperature Assessment Sheets

2 pages follow

**Westinghouse LOCA Peak Clad Temperature Summary for Small Break**

**Plant Name:** Prairie Island Unit 1  
**Utility Name:** Nuclear Management Company, LLC  
**Revision Date:** 4 /4 /05

**Analysis Information**

**EM:** NOTRUMP                      **Analysis Date:** 11/21/03      **Limiting Break Size:** 6 inch  
**FQ:** 2.8                              **FdH:** 2  
**Fuel:** OFA                           **SGTP (%):** 10  
**Notes:** Zirlo™ (14X14), Framatome RSG

	Clad Temp (°F)	Ref.	Notes
<b>LICENSING BASIS</b>			
<b>Analysis-Of-Record PCT</b>	1409	1,2,3	(a)
<b>MARGIN ALLOCATIONS (Delta PCT)</b>			
<b>A. PRIOR PERMANENT ECCS MODEL ASSESSMENTS</b>			
1 . None	0		
<b>B. PLANNED PLANT CHANGE EVALUATIONS</b>			
1 . None	0		
<b>C. 2004 PERMANENT ECCS MODEL ASSESSMENTS</b>			
1 . None	0		
<b>D. TEMPORARY ECCS MODEL ISSUES*</b>			
1 . None	0		
<b>E. OTHER</b>			
1 . None	0		
<b>LICENSING BASIS PCT + MARGIN ALLOCATIONS</b>	<b>PCT = 1409</b>		

\* It is recommended that these temporary PCT allocations which address current LOCA model issues not be considered with respect to 10 CFR 50.46 reporting requirements.

**References:**

- 1 . NSP-04-10 "Safety Analysis Transition Program Transmittal of Engineering Report," February 20, 2004.
- 2 . WCAP-16206-P, "Safety Analysis Transition Program Engineering Report for the Prairie Island Nuclear Power Plant, Volume 1 Engineering Analyses," February 2004.
- 3 . OC-PX-2004.009, "SBLOCA Analysis Loop Seal Restriction Option," Mercier to Brown, March 5, 2004.

**Notes:**

- (a) The 6-inch break is limiting when the loop seal restriction is applied to all break sizes.



**Westinghouse LOCA Peak Clad Temperature Summary for Small Break**

**Plant Name:** Prairie Island Unit 2  
**Utility Name:** Nuclear Management Company, LLC  
**Revision Date:** 4 /4 /05

**Analysis Information**

**EM:** NOTRUMP                      **Analysis Date:** 9/1/00                      **Limiting Break Size:** 3 inch  
**FQ:** 2.8                              **FdH:** 2  
**Fuel:** OFA                              **SGTP (%):** 25  
**Notes:** Zirlo™ (14X14)

	Clad Temp (°F)	Ref.	Notes
<b>LICENSING BASIS</b>			
<b>Analysis-Of-Record PCT</b>	1142	1	(a)
<b>MARGIN ALLOCATIONS (Delta PCT)</b>			
<b>A. PRIOR PERMANENT ECCS MODEL ASSESSMENTS</b>			
1 . No Items for 2000, 2001 & 2002 Reports	0	2,4,5	
2 . NOTRUMP Bubble Rise / Drift Flux Model Inconsistency Corrections	35	6,7	
<b>B. PLANNED PLANT CHANGE EVALUATIONS</b>			
1 . None	0		
<b>C. 2004 PERMANENT ECCS MODEL ASSESSMENTS</b>			
1 . None	0		
<b>D. TEMPORARY ECCS MODEL ISSUES*</b>			
1 . None	0		
<b>E. OTHER</b>			
1 . Evaluation for Reduced Auxiliary Feedwater Flow Rate	0	3	

**LICENSING BASIS PCT + MARGIN ALLOCATIONS                      PCT = 1177**

\* It is recommended that these temporary PCT allocations which address current LOCA model issues not be considered with respect to 10 CFR 50.46 reporting requirements.

**References:**

- 1 . NSP-00-045, "SBLOCA Re-analysis with Revised NOTRUMP Code," October 2, 2000.
- 2 . NSP-01-006, "Northern States Power Company Prairie Island Units 1 and 2 10 CFR 50.46 Annual Notification and Reporting for 2000," March 6, 2001.
- 3 . NSP-02-36, "SBLOCA Limited FSAR Update and Evaluation for Revised Auxiliary Feedwater Flow Rate," October 2002.
- 4 . NSP-02-5, "Nuclear Management Company Prairie Island Units 1 and 2 10 CFR 50.46 Annual Notification and Reporting for 2001," March 2002.
- 5 . NSP-03-19, "Nuclear Management Company Prairie Island Units 1 and 2 10 CFR 50.46 Annual Notification and Reporting for 2002," March 2003.
- 6 . NSP-03-68, "10 CFR 50.46 Mid-Year Notification and Reporting for 2003," November 2003.
- 7 . NSP-03-38, "Nuclear Management Company Prairie Island Units 1 and 2 10 CFR 50.46 Annual Notification and Reporting for 2003," March 2004.

**Notes:**

- (a) Accumulator water volume sensitivity of +/- 30 cubic feet included.