



Constellation Energy

November 10, 2005

U.S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318;
License Nos. DPR 53 & DPR 69
Licensee Event Report 2005-003
Overpower Condition Resulting from Non-conservative Flow Correction Factors

The attached licensee event report is being sent to you as required by 10 CFR 50.73. Should you have questions regarding this report, we will be pleased to discuss them with you.

Very truly yours,

Joseph E. Pollock
Plant General Manager

JEP/MJY/bjd

Attachment: As stated

cc: P. D. Milano, NRC
S. J. Collins, NRC

Resident Inspector, NRC
R. I. McLean, DNR

IE22

NRC FORM 366 (7-2001)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004 Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.			
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)							
1. FACILITY NAME Calvert Cliffs Nuclear Power Plant				2. DOCKET NUMBER 05000 317		3. PAGE 1 OF 003	
4. TITLE Overpower Condition Resulting from Non-conservative Flow Correction Factors							
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY
09	12	05	2005	- 03 - 00		11	10
			8. OTHER FACILITIES INVOLVED				
			FACILITY NAME Calvert Cliffs				
			DOCKET NUMBER 05000 318				
			FACILITY NAME DOCKET NUMBER 05000				
9. OPERATING MODE		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR * (Check all that apply)					
1							
10. POWER LEVEL							
100							
		20.2201(b) 20.2203(a)(3)(ii) 50.73(a)(2)(ii)(B) 50.73(a)(2)(ix)(A)					
		20.2201(d) 20.2203(a)(4) 50.73(a)(2)(iii) 50.73(a)(2)(x)					
		20.2203(a)(1) 50.36(c)(1)(i)(A) 50.73(a)(2)(iv)(A) 73.71(a)(4)					
		20.2203(a)(2)(i) 50.36(c)(1)(ii)(A) 50.73(a)(2)(v)(A) 73.71(a)(5)					
		20.2203(a)(2)(ii) 50.36(c)(2) 50.73(a)(2)(v)(B) OTHER					
		20.2203(a)(2)(iii) 50.46(a)(3)(ii) 50.73(a)(2)(v)(C) Specify in Abstract below or in NRC Form 366A					
		20.2203(a)(2)(iv) 50.73(a)(2)(i)(A) 50.73(a)(2)(v)(D)					
		20.2203(a)(2)(v) X 50.73(a)(2)(i)(B) 50.73(a)(2)(vii)					
		20.2203(a)(2)(vi) 50.73(a)(2)(i)(C) 50.73(a)(2)(viii)(A)					
		20.2203(a)(3)(i) 50.73(a)(2)(ii)(A) 50.73(a)(2)(viii)(B)					
12. LICENSEE CONTACT FOR THIS LER							
NAME Michael J. Yox						TELEPHONE NUMBER (Include Area Code) 410-495-6652	
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT							
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT
14. SUPPLEMENTAL REPORT EXPECTED						15. EXPECTED SUBMISSION DATE	
X YES (If yes, complete EXPECTED SUBMISSION DATE)						MONTH DAY YEAR 01 15 06	
NO							
16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)							
<p>Preliminary tracer testing results received on September 12, 2005 indicated that main feedwater flow venturi correction factors calculated using ultrasonic flow meters (UFMs) may have been set non-conservatively low. Immediate corrective actions included returning main feedwater flow correction factors on Unit 1 and Unit 2 to (1.000). This action effectively removed the UFMs from service. The non-conservative correction factors were installed on July 22, 2003 (Unit 1) and July 8, 2003 (Unit 2). Unit 1 and Unit 2 operated at rated thermal power levels of up to 100.4 and 100.74 percent, respectively during this period. The correction factor errors did not represent a failure of any installed components.</p> <p>A root cause evaluation by the vendor is in progress and is not expected to be completed before November 12, 2005. Additional corrective actions resulting from the final root cause evaluation will be included in a supplemental report. The maximum analyzed steady state reactor core power levels, including uncertainties, are 102 percent of rated thermal power or 2754 MWth. This value was not exceeded during operation with the non-conservative correction factors installed.</p>							

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17. NARRATIVE (If more space is required, use additional copies of NRC Form 366A)

I. DESCRIPTION OF EVENT

Tracer testing indicated that main feedwater flow venturi correction factors, calculated using ultrasonic flow meters (UFMs), may have been set non-conservatively low. Preliminary results from testing performed on August 18 – 19, 2005 were received from the vendor on September 12, 2005. Final vendor approved results and root cause are not expected before November 12, 2005, however no significant changes are expected in the tracer test results. Immediate corrective actions included returning main feedwater flow correction factors on Unit 1 and Unit 2 to (1). This action effectively removed the UFMs from service. The non-conservative correction factors were installed on July 22, 2003 (Unit 1) and July 8, 2003 (Unit 2).

The maximum authorized steady-state reactor core power levels, per Unit 1 and Unit 2 Operating License Conditions 2.C.(1), are not to exceed 2700 MWth. Unit 1 operated at a maximum power level of 2711 MWth [100.4 percent rated thermal power (RTP)] from July 22, 2003 until the time of discovery (September 12, 2005). Unit 2 operated at a maximum power level of 2720 (100.74 percent RTP) MWth from July 8, 2003 until the same time of discovery. The maximum analyzed steady-state reactor core power levels, including uncertainties, are 102 percent of RTP or 2754 MWth.

II. CAUSE OF EVENT

The non-conservative main feed flow correction factors were installed based on the use of a vendor supplied and approved methodology, in accordance with site procedures. The vendor's root cause evaluation is underway and will be included in Supplement 1 to this Licensee Event Report, along with any additional corrective actions identified as a result of the root cause.

III. ANALYSIS OF EVENT

This event is reportable in accordance with the following:

10 CFR 50.73(a)(2)(i)(B); "Any operation or condition which was prohibited by the plant's Technical Specifications."

Calvert Cliffs Nuclear Power Plant (CCNPP) Technical Specifications, Limiting Condition for Operation (LCO) 3.2.5 for Axial Shape Index (ASI) requires that ASI shall be maintained within the limits specified in the Core Operating Limits Report (COLR). This Technical Specification is applicable when in Mode 1 with thermal power greater than 20 percent. Axial Shape Index shall be restored to within (COLR) limits within two hours if this LCO is not met. The corresponding COLR Section 3.2.5, requires ASI to be maintained within the limits of COLR Figure 3.2.5 when the Better Axial Shape Selection System (BASSS) is inoperable.

Operability of the BASSS is typically only challenged when the plant computer fails. Two periods were identified for Unit 2 and one period was identified for Unit 1 where the non-conservative main feedwater flow correction factors were installed and the plant computer was down longer

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than two hours while the ASI LCO was applicable. The Unit 1 BASSS was inoperable for greater than 2 hours on April 22, 2004 (7 hours 45 minutes). The Unit 2 BASSS was inoperable for greater than 2 hours on July 24, 2003 (one occurrence of 4 hours 30 minutes, and one additional occurrence of 2 hours 2 minutes) and February 14, 2005 (14 hours 17 minutes).

During periods of BASSS inoperability, COLR Figure 3.2.5 establishes acceptable and unacceptable regions for operation within limits of Peripheral ASI (y-coordinates) and Fraction of Maximum Allowable Thermal Power (x-coordinates). The maximum value on COLR Figure 3.2.5 within the acceptable operation region has a corresponding maximum allowable thermal power value (x-coordinate) of 1.000. Operation in excess of 100 percent RTP is, therefore, in the unacceptable operation region of the curve and prohibited by Technical Specification 3.2.5 with BASSS inoperable. Although the non-conservative main feedwater flow correction factors were installed for over two years, the total amount of time in excess of the LCO Required Action Completion Time for the ASI Technical Specification (3.2.5) was less than 24 hours for each unit. Engineering evaluation has determined that operation during the period when BASSS was inoperable in excess of the Technical Specification LCO Required Action Completion Time did not result in exceeding any design limits.

An evaluation of the impact on core damage frequency was performed for an extended period of operation at 101.1 percent RTP. This evaluation is bounding for both Unit 1 and Unit 2. The assessment determined an increase in annual core damage frequency of less than 1.0E-6/year.

IV. CORRECTIVE ACTIONS

- A. All main feedwater flow correction factor inputs to the plant computer were restored to a value of 1.000 to effectively remove the UFM's from service.
- B. A detailed root cause evaluation is underway by the vendor, with CCNPP participation. Results of this root cause evaluation will determine additional corrective actions.

V. ADDITIONAL INFORMATION

- A. Component Identification

Component	IEEE 803 EIS Function	IEEE 805 System ID
Feedwater Flow Venturi	FI	SJ
Plant Computer	CPU	ID

- B. Previous Occurrences

No other previous similar events have occurred within the past three years at CCNPP.