



May 29, 2009

L-MT-09-052  
10 CFR Part 50.73

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

Monticello Nuclear Generating Plant  
Docket No. 50-263  
Renewed License No. DPR-22

LER 2009-002, "Pipe Whip for High Energy Line Break"

A Licensee Event Report (LER) for this occurrence is attached.

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

A large, stylized handwritten signature in black ink, appearing to read 'Timothy J. O'Connor'.

Timothy J. O'Connor  
Site Vice President, Monticello Nuclear Generating Plant  
Nuclear Management Company, LLC

Enclosure

cc: Administrator, Region III, USNRC  
Project Manager, Monticello, USNRC  
Resident Inspector, Monticello, USNRC

NRC FORM 366 (9-2007)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 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.			EXPIRES 8-31-2010		
<b>LICENSEE EVENT REPORT (LER)</b> (See reverse for required number of digits/characters for each block)										
FACILITY NAME (1) Monticello Nuclear Generating Plant					DOCKET NUMBER (2) 05000263			PAGE (3) 1 of 4		
TITLE (4) Pipe Whip For High Energy Line Break										
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	02	2009	2009	- 002	- 00	05	29	2009	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		5		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)						
POWER LEVEL (10)		0%		20.2201(b)		20.2203(a)(3)(ii)	X	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 Specify in Abstract below or in NRC Form 366A	
				20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		
				20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)		
				20.2203(a)(2)(v)		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)		
<b>LICENSEE CONTACT FOR THIS LER (12)</b>										
NAME Ron Baumer					TELEPHONE NUMBER (Include Area Code) 763-295-1357					
<b>COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)</b>										
CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	
<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>					<b>EXPECTED SUBMISSION DATE (15)</b>		MONTH	DAY	YEAR	
YES (If yes, complete EXPECTED SUBMISSION DATE).					X	NO				
<b>ABSTRACT</b>										
<p>On April 2 and 14, 2009, with the plant shutdown and in Mode 5, plant personnel were performing a HELB pipe whip and jet impingement walk down of areas inaccessible during operations. During the walk down, two potential HELB pipe whip issues were found (RCIC HELB in the Steam Chase and Main Steam HELB in the Condenser Room). The cause of the event was a failure by station personnel to identify and correct these potential pipe whip issues during the HELB re-evaluation completed in 1986. The potential HELB conditions were corrected by a modification performed during the outage.</p>										

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Monticello Nuclear Generating Plant	05000263	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 of 4
		2009	- 002	- 00	

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

**Event Description**

As part of an on-going station HELB improvement plan a review of piping structures for potential HELB effects were performed based on industry benchmarking, lessons learned and corrective actions from previous plant events. As part of this plan, a series of plant walk downs for pipe whip and jet impingement were scheduled for the plant. On April 2 and 14, 2009 with the plant shutdown and in Mode 5 for a refueling outage, plant personnel performed the scheduled HELB walk downs of inaccessible areas. During the walk down, two potential HELB pipe whip issues were found.

1. Potential Reactor Core Isolation Cooling (RCIC) [BN] HELB in the Steam Chase (April 2, 2009): A postulated break at MO-2107 would result in a jet force from the 4 inch RCIC pipe which would force the cantilever end of the broken RCIC pipe up and into the 3" Essential Service Water (ESW) [BI] Div 2. This force was determined to be enough to cause the ESW Div 2 pipe to fail. The result is no safe shutdown path would be available assuming a concurrent loss of off-site power and worse case single active failure would occur at the same time.
2. Potential Main Steam [SB] HELB in the Condenser Room [SG] (April 14, 2009): A postulated Main Steam HELB would produce a jet reaction force which could potentially whip into the steam bypass line and force it into the 3" Emergency Service Water (FSW) [BI] Div 2 line. The result is no safe shutdown path would be available assuming a concurrent loss of off-site power and worse case single active failure would occur at the same time.

**Event Analysis**

The station determined there was no current operability concern due to the condition being discovered while the plant was shutdown for a refueling outage and therefore the event was not reportable under 10 CFR 50.72. However, due to past operability concerns, the event is reportable under 50.73(a)(2)(ii) (B) "Any event or condition that resulted in the nuclear power plant being in an unanalyzed condition that significantly degrades plant safety," and a Licensee Event Report is required for this event.

The event is not considered a safety system functional failure since a single active failure is not required to be considered for the opposite division not affected by the HELB for the safety function determination.

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**Safety Significance**

The Probabilistic Risk Assessment (PRA) group performed an evaluation of the risk. Additional risk from these deficiencies is considered to be very small based on the following:

- Specific HELB failures have very low frequency of occurrence. For the failures of interest, EPRI TR-102266 (Pipe Failure Study Update) provides estimates of 2.02 E-09/hr for the RCIC HELB and 9.63 E-10/hr for the steam line break. These failures equate to 1.8 E-5/yr and 8.4 E-6/yr respectively for a total frequency (one RCIC line and 4 steam lines) of approximately 5 E-05/yr.
- Given the RCIC or Main Steam Line break, it is not certain that the effect would be to impact the FSW supply line such that cooling would be lost to the FSW loads.
- FSW supplies emergency control room ventilation and low pressure Emergency Core Cooling System (ECCS) [BM] motor and room cooling, which are not important systems in the PRA. Loss of emergency control room ventilation [VI] has no impact on the frequency of core damage. Loss of room and motor cooling from FSW to the ECCS rooms and pumps does not impact the ability for the ECCS systems to perform their function as modeled in the PRA. Although FSW is required for Technical Specification operability, ECCS success was determined to exist upon failure of the FSW system.
- Conservatively assuming failure of the Division II ECCS systems as a result of FSW failure leaves many alternate injection systems that are fully capable of supporting the reactor vessel makeup and decay heat removal critical safety functions.

In conclusion, the risk of core damage attributable to either of the potential events discussed above is considered to be very small.

**Cause**

The issues were identified as part of an on-going station HELB improvement plan. A review of piping structures for potential HELB effects was implemented based on industry benchmarking, lessons learned and corrective actions from previous plant events.

The cause for the potential pipe whip issues was a failure by station personnel to identify and correct these potential issues during a HELB re-evaluation completed in 1986.

**Corrective Action**

1. The conditions of these events were corrected by a modification which eliminated the potential HELB issues on the 3" FSW-B line.

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**Failed Component Identification**

None

**Previous Similar Events**

MNGP LER 263-2000-004: An analysis of a high energy line break (HELB) on the 911ft elevation of the Turbine Building indicated flooding of the Division I 4kV switchgear room and possible loss of the Division I 4kV switchgear. With an assumed loss of offsite power, Division II Emergency Diesel Generator was considered the worse case single active failure. Therefore, this event could potentially result in loss of the station AC power from both divisions of the 4kV distribution system. Modifications were installed to prevent water from entering the Division I 4kV switchgear room.

MNGP LER 263-2008-001: On January 31, 2008 during a review of the High Energy Line Break (HELB) calculations for the plant's Extended Power Uprate (EPU) project, it was determined that the existing HELB calculations failed to consider the actuation of the fire sprinklers in the condenser bay and the resultant flooding impact on the lower Division 1 4kV equipment. The station had previously installed a flood barrier near the 4kV Switchgear room door therefore present operability was not impacted. The station determined that prior to the installation of the barrier, there was a potential for the loss of the lower Division 1 4kV equipment. The cause of the event was a failure to consider the impact of the fire sprinklers. Corrective actions taken or planned are: the flood barrier will remain in place and a revision of the affected HELB calculations will be performed.