



Monticello Nuclear Generating Plant  
2807 West County Road 75  
Monticello, MN 55362-9637

Operated by Nuclear Management  
Company LLC

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May 11, 2001

US Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

**MONTICELLO NUCLEAR GENERATING PLANT**  
Docket No. 50-263 License No. DPR-22

**LER 2001-008**  
**High Energy Line Break Barriers Found in an Unanalyzed Condition**

A Licensee Event Report for this occurrence is attached. This report contains no new NRC commitments.

Contact Mohamad Marashi at (763) 295-1425 if you require further information.

Byron Day  
Plant Manager  
Monticello Nuclear Generating Plant

c: Regional Administrator - III NRC  
NRR Project Manager, NRC

Sr Resident Inspector, NRC  
Minnesota Department of Commerce

Attachment

IE22

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

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.

<b>FACILITY NAME (1)</b> Monticello Nuclear Generating Plant	<b>DOCKET NUMBER (2)</b> 05000263	<b>PAGE (3)</b> 1 OF 4
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**TITLE (4)**  
High Energy Line Break Barriers Found in an Unanalyzed Condition

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
03	12	2001	2001	008	00	05	11	2001		05000
										05000

<b>OPERATING MODE (9)</b> N	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)</b>									
	20.2201(b)	20.2203(a)(3)(ii)	<input checked="" type="checkbox"/>	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)					
<b>POWER LEVEL (10)</b> 000	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)						

**LICENSEE CONTACT FOR THIS LER (12)**

<b>NAME</b> Mohamad Marashi	<b>TELEPHONE NUMBER (Include Area Code)</b> (763) 295-1425
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	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).	<input checked="" type="checkbox"/>	NO					

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

On March 12, 2001 with the reactor at cold shutdown, plant personnel identified an unanalyzed condition related to structural adequacy of two High Energy Line Break (HELB) barrier walls located on the 931ft elevation of the Turbine Building. The HELB barriers separate two redundant divisions of essential 480V Motor Control Centers (MCC), and are required to withstand differential pressure forces due to a postulated HELB. A postulated HELB of a feedwater pump discharge line or a main steam line in the Turbine Building and a consequent failure of these walls could damage both divisions of 480V MCCs.

Modifications were installed to ensure that the affected HELB barriers would withstand the postulated HELB pressure forces.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
MONTICELLO NUCLEAR GENERATING PLANT	05000263	01	-- 008	00	2 OF 4

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

Description

On March 12, 2001 with the reactor at cold shutdown, plant personnel identified an unanalyzed condition related to structural adequacy of two High Energy Line Break (HELB) barrier walls located on the 931ft elevation of the Turbine Building<sup>1</sup>. The HELB barriers separate two redundant divisions of essential 480V Motor Control Centers<sup>2</sup> (MCC), and are required to withstand differential pressure forces due to a postulated HELB. A postulated HELB of a feedwater<sup>3</sup> pump<sup>4</sup> discharge line or a main steam<sup>5</sup> line in the Turbine Building and a consequent failure of these walls could damage both divisions of 480V MCCs.

The two identified HELB barrier walls were originally installed as fire barriers and they are credited in the Environmental Qualification (EQ) analyses as HELB barriers. Modifications were installed to ensure that the HELB barriers would withstand the postulated HELB pressure forces as assumed in the EQ analysis.

Event Analysis

Analysis of Reportability

This report is being submitted in accordance with 10 CFR 50.73(a)(2)(ii)(B) as conditions that resulted in the nuclear power plant being in an unanalyzed condition that significantly degraded plant safety. In the case of unanalyzed HELB barriers, both divisions of essential 480V MCCs could have been degraded.

Safety Significance

A feedwater or a main steam line break is an unlikely event. The feedwater and main steam piping has been analyzed seismically to be able to withstand the design basis earthquake. Also, this piping is included in the formal program for monitoring flow induced erosion/corrosion in piping systems and has been monitored for wall thinning. The thinning rates are within normally expected values. No piping replacement has been required in the feedwater or main steam piping. Failure due to either of these mechanisms is unlikely.

1 EIIS System Code = NM  
 2 EIIS System Code = SB  
 3 EIIS System Code = SJ  
 4 EIIS System Code = P  
 5 EIIS System Code = MCC

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
MONTICELLO NUCLEAR GENERATING PLANT	05000263	01	-- 008	- 00	3 OF 4

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

A risk assessment performed by Monticello Probabilistic Risk Assessment (PRA) Group concluded that the failure of the HELB barriers described above has a low safety significance. This conclusion was based on the following considerations:

1. The frequency of a HELB in the feedwater or main steam lines.
2. The probability of failure of Division I MCCs.
3. The probability of failure of the HELB barriers.
4. The probability of failure of Division II MCCs.
5. Availability of both divisions of 4kV switchgear<sup>1</sup> equipment, Emergency Diesel Generators (EDG)<sup>8</sup>, RHR<sup>6</sup>, Core Spray<sup>7</sup>, RCIC<sup>2</sup>, HPCI<sup>3</sup>, SRVs<sup>4</sup>, RHR<sup>5</sup> and Hard Pipe Vent systems. Operator action would be required to manually open the injection valves<sup>9</sup> for the RHR and Core Spray systems.

Additional analyses could be performed that, if credited, would further lower the calculated safety significance of these HELB barrier failures.

Cause

Personnel error has been determined to be the cause of this event. Significant enhancements have been made to the thermal-hydraulic model of the Turbine Building using many more subcompartments than the previous analyses. These detailed models contain additional compartments in the building and have numerous subdivisions of large areas. In addition, flow paths representing openings in the rooms were included. The additional enhancements to the original model resulted in higher peak transient pressure forces for certain fire barrier walls credited as HELB barriers. These barriers were not evaluated for the higher pressure forces.

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- 1 EIS System Code = EB
  - 2 EIS System Code = BN
  - 3 EIS System Code = BJ
  - 4 EIS System Code = RV
  - 5 EIS System Code = BI
  - 6 EIS System Code = BO
  - 7 EIS System Code = BM
  - 8 EIS System Code = EK
  - 9 EIS System Code = INV

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MONTICELLO NUCLEAR GENERATING PLANT	05000263	01	-- 008	- 00	4 OF 4

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

Corrective Actions

Corrective Actions:

Modifications were installed to ensure that the HELB barriers would withstand the postulated HELB pressure forces. A plant walkdown of all fire barrier walls credited as HELB barriers was performed. All identified HELB barriers were evaluated and found to be capable of performing their intended functions.

Preventive Actions:

Training and procedural improvements are being formulated to ensure proper identification and qualification of all HELB barriers.

Failed Component Identification

None

Similar Events

A discrepancy in the High Energy Line Break analysis was reported in May 1996. This discrepancy was of a different type. The identified discrepancy involved an error in the licensing basis HELB analysis for the Turbine Building. The error resulted in improperly analyzing ambient temperatures in the vicinity of Division II MCC-142, Division II MCC-143 and the 4kV switchgear rooms for the limiting feedwater HELB. The re-analysis determined that these areas could become harsh environments; however, the licensing basis analysis did not predict these areas to be harsh environments.