



December 6, 2002

10 CFR Part 50
Section 50.73

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

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

LER 2002-006

Surveillance Activity to Isolate Transmitter Prevents a Flow Bias Scram Signal

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

Contact Ron Baumer at (763) 295-1357 if you require further information.

Jeffrey S. Forbes
Site Vice President
Monticello Nuclear Generating Plant

Enclosure

- c: Regional Administrator - III NRC
NRR Project Manager, NRC
Sr. Resident Inspector, NRC
Minnesota Department of Commerce

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NRC FORM 366 (7-2001)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104			EXPIRES 7-31-2004			
LICENSEE EVENT REPORT (LER)					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.						
(See reverse for required number of digits/characters for each block)											
1. FACILITY NAME Monticello Nuclear Generating Plant				2. DOCKET NUMBER 05000263			3. PAGE 1 OF 4				
4. TITLE Surveillance Activity to Isolate Transmitter Prevents Fulfillment of Safety Function											
5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED		
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
10	08	2002	2002	- 006	- 00	12	06	2002	FACILITY NAME	DOCKET NUMBER	
9. OPERATING MODE N											
11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)											
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)		X 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)				
12. LICENSEE CONTACT FOR THIS LER											
NAME Ron Baumer						TELEPHONE NUMBER (Include Area Code) 763-295-1357					
13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	
14. SUPPLEMENTAL REPORT EXPECTED							15. EXPECTED SUBMISSION DATE		MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).					X	NO					
16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)											
<p>During the review of Nuclear Instrument surveillances, plant personnel discovered that the current method of isolating the flow transmitter isolation valves for the Average Power Range Monitor (APRM) Recirculation Flow Instrumentation resulted in a condition that could momentarily prevented a flow bias scram signal in the trip system being tested. This event was the result of an incorrect procedure revision performed in 1992.</p>											

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		2002	- 006	- 00	

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

Description

On October 8, 2002, station personnel were performing a review of Nuclear Instrumentation surveillances. While performing this review, it was determined that the APRM¹ Recirculation Flow Instrumentation Calibration Surveillance procedure allowed a condition that could momentarily prevented a flow bias scram signal. The surveillance required station personnel to close the valves² to isolate the transmitter³ and then open the equalizing valve resulting in a half scram. During the time frame required to open the equalizing valve and obtain the half scram signal, there were no operable APRM instrument channels available to provide a flow bias scram signal in the trip system being tested due to the transmitter being isolated. Engineering placed a hold on the surveillance procedure and initiated a procedure revision to correct the condition.

Event Analysis

Analysis of Reportability

The event is reportable under 10 CFR 50.73(a)(2)(v)(A), "Any event or condition that could have prevented the fulfillment of the safety function of structures, or systems that are needed to: (A) Shutdown the reactor and maintain it in a safe shutdown condition." Since the flow bias neutron scram provides protection for the fuel safety limit in the unlikely event of a thermo-hydraulic instability, the fulfillment of a needed safety function was not met for the momentary period during surveillance performance.

This event constitutes a safety system functional failure.

Safety Significance

The safety significance of the event is assessed as minimal. The transient and overpressure safety analyses take credit for the clamped Hi-Hi Scram setpoint at $\leq 120\%$, and this setpoint was unaffected by a loss of flow bias instrumentation. The thermo-hydraulic stability analysis considers the effects of flow-biased setpoint; but this is a concern only at reduced recirculation flows. Flows were normal so the conditions, which would warrant this trip, were not present.

The PRA Group has concluded that although the condition of operating without the intended number of APRM instrument channels in the operable condition is highly undesirable, the

¹ EIS System Code IG
² Component Code RTV
³ Component Code FFT

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additional risk that can be attributed to inadvertent past operations in this condition at Monticello would be extremely small for the following reasons:

- The flow biased APRM scram setting is clamped at a value of $\leq 120\%$ power, and this clamp is not affected by the flow input from the recirculation system.
- There are operating restrictions, which prevent the reactor from being operated in high-power low-flow regions where thermal-hydraulic instabilities are considered to be a potential threat. There are also abnormal operating procedures which address the monitoring and control of neutron flux oscillations, should such oscillations resulting from thermal-hydraulic instability occur for any reason. Thus, barriers in addition to the flow-biased scram exist to protect the fuel safety limit from challenges arising from thermal-hydraulic instability concerns.
- The fraction of operating time since 1992 when the flow-biased scram was more limiting than the 120% clamp value was small and limited to plant startups, shutdowns, and significant power reductions. Furthermore, within this subset of operating time, the time when core operation was near the regions of increased thermal-hydraulic instability susceptibility (high power/low flow) was even smaller. Finally, the momentary time periods within the procedure when the surveillance was performed while operating at high power/low flow core conditions would be a very small subset of the prior two conditions.

Cause

The cause of the event was an incorrect procedure revision performed in 1992, which allowed the transmitter valves to be isolated prior to equalizing transmitter pressure with the resulting half scram. The procedure writer appears to have not recognized the significance of the two-step process of valve isolation. During an early 1990's effort to reduce inadvertent scrams, the manual half scram insertion during this procedure was eliminated with the expectation that the half scram would occur as the transmitter was isolated.

Corrective Actions

The surveillance procedure has been revised to include a step to insert a half-scram signal prior to performing the isolation of the transmitter valves (Rev 29 of Surveillance 0026).

Failed Component Identification

No component failure occurred in this event.

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Previous Similar Events

LER 1985-010, "Reactor Scram during MSL Low Pressure Surveillance Test," describes a reactor scram that occurred during an instrument surveillance due to a valve operation error. The LER describes a physical plant event rather than failure to comply with the plant's licensing bases with respect to equipment operability determination.

LER 2001-001, "Deficient Procedures Fail to Require Independent Verification following Return to Service of Individual Channels during Instrument Surveillance," describes a technical specification violation due to having more than the allowed number of instrument channels and trip systems to be considered inoperable. The event was the result of a procedural deficiency where independent verifications of instrument channels were done after all the channels were calibrated and tested rather than after each individual channel was calibrated and tested.