



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

Operated by Nuclear Management
Company LLC

August 18, 2000

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

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

LER 2000-011
Service Water Radiation Monitor Alarm Setpoint
Non-Conservative With Circulating Water Pumps Shutdown

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

Contact David Musolf, Consulting Production Engineer, at (763) 295-1201 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

JE22

NRC FORM 366 (6-1998)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001 Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to the industry. Forward comments regarding burden estimate to the Records Management Branch(T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an 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) <small>(See reverse for required number of digits/characters for each block)</small>					DOCKET NUMBER (2) 05000263			PAGE (3) 1 OF 5			
FACILITY NAME (1) MONTICELLO NUCLEAR GENERATING PLANT					TITLE (4) Service Water Radiation Monitor Alarm Setpoint Did Not Meet Technical Specification Requirements With Circulating Water Pumps Shutdown						
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
07	19	00	00	011	00	08	18	00		05000	
OPERATING MODE (9)		N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)		100	20.2201(b)			20.2203(a)(2)(v)	<input checked="" type="checkbox"/>		50.73(a)(2)(i)	50.73(a)(2)(viii)	
			20.2203(a)(1)			20.2203(a)(3)(I)			50.73(a)(2)(ii)	50.73(a)(2)(x)	
			20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)	73.71	
			20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)	OTHER	
			20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A	
			20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)		
LICENSEE CONTACT FOR THIS LER (12)											
NAME David Musolf						TELEPHONE NUMBER (Include Area Code) 763-295-1201					
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		
SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)			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)

During review of the Monticello Offsite Dose Calculation Manual (ODCM), it was discovered that the setpoint for the service water discharge radiation monitor was non-conservative for certain modes of plant operation. The ODCM setpoint takes credit for the 240,000 gpm of dilution flow in the discharge canal normally provided by the circulating water pumps. When these pumps are shutdown during outages, this dilution flow is no longer available. As a consequence, the service water discharge radiation monitor alarm was inoperable during these times, i.e. the setpoint was higher than allowed by Technical Specification 3.8.A.1.d. This condition was caused by an inadequate ODCM procedure for determining the service water discharge monitor alarm setpoint. No detectable release of radioactive material occurred at any time as the result of this error.

(6-1998)

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME(1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
MONTICELLO NUCLEAR GENERATING PLANT	05000263	00	-- 011 --	00	2 of 5

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

Problem Definition

During periods when both circulating water pumps were not operating, the service water discharge monitor alarm setpoint was higher than allowed by Technical Specification 3.8.A.1.d.

Description

During normal full power operation in March, 2000, while reviewing the liquid process radiation monitor¹ alarm setpoints in the Monticello Offsite Dose Calculation Manual (ODCM), it was discovered that the setpoint for the service water² discharge radiation monitor was not correct during periods when both plant main condenser circulating water³ pumps⁴ are not operating. On July 19, 2000, following additional investigation, this event was determined to be a condition prohibited by the Technical Specifications and reportable in accordance with 10 CFR Part 50, Section 50.73(a)(2)(i)(B).

The ODCM setpoint was found to take credit for 240,000 gpm of dilution flow in the discharge canal due to normal operation of the circulating water pumps. No guidance was provided in the ODCM to adjust the setpoint during condenser maintenance or plant outages when one or both circulating water pumps are shutdown.

The service water discharge monitor alarm setpoint is required by Technical Specification 3.8.A.1.d to be set at, or below, the count rate equivalent to the maximum annual average concentration of radioactive material in water permitted by Table 2, Column 2, of Appendix B to 10 CFR Part 20. In determining this setpoint, a dilution factor equal to the service water discharge rate divided by the flow rate in the discharge canal is used. Under normal circumstances, with both circulating water pumps in operation, this results in a maximum alarm setpoint of 171 counts/second (cps) above background. It was determined that the setpoint should be adjusted downward, as shown below, when one or both circulating water pumps are shutdown, thereby reducing the dilution flow in the discharge canal:

¹ EIIS System Code:	IL
² EIIS System Code:	KG
³ EIIS System Code:	NN
⁴ EIIS Component Code:	P

(6-1998)

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME(1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
MONTICELLO NUCLEAR GENERATING PLANT	05000263	00	-- 011 --	00	3 of 5

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

No. of Circulating Water Pumps in Operation	Service Water Disch Monitor Setpoint (cps above bkg)
Two (Normal Operation)	<171
One	<85
None	<7

Actual service water discharge monitor alarm setpoint has been set at 20 cps, including nominal background count rates of 8 cps when the plant is operating and 4 cps when the plant is shutdown. The setpoint of 20 cps is conservative, except for those periods during which no circulating water pumps are operating. The alarm is considered to have been inoperable during those periods.

Event Analysis

Analysis of Reportability

This event was determined to be reportable as a condition prohibited by the Technical Specifications in accordance with 10 CFR Part 50, Section 50.73(a)(2)(i)(B). The service water discharge radiation monitor alarm was determined to be set too high, and therefore inoperable, during periods when no circulating water pumps were in operation. Table 3.8.1 of the Technical Specifications requires service water grab samples to be obtained at 8-hour intervals when the service water discharge radiation monitor alarm is not operable. These grab samples were not taken as required because the inoperable condition of the monitor was not recognized.

The service water discharge monitor is not a safety-related structure, system, or component. This event is therefore not reportable in accordance with 10 CFR 50.73(a)(2)(v).

Safety Significance

The service water discharge monitor nominal alarm setpoint of 20 cps has exceeded the maximum allowed setpoint of 11 cps (7 cps plus 4 cps background) during periods when both circulating water pumps have been shut down. The period of time when no

(6-1998)

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME(1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
MONTICELLO NUCLEAR GENERATING PLANT	05000263	00	-- 011 --	00	4 of 5

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

circulating pumps were running is estimated to be less than 10% less of the total period.

It is extremely unlikely that any unalarmed release of radioactive liquid in the service water discharge has occurred. This is because:

- Grab sample of the service water discharge are routinely obtained weekly and analyzed for principal gamma emitters. No detectable activity has ever been found in the service water discharge samples.
- A review of service water discharge monitor count rates during the recent 2000 refueling outage, when both circulating water pumps were shutdown, found no instance in which monitor count rate exceeded 10 cps while the monitor was in service. Grab samples taken at 8-hour intervals during periods when the monitor was out of service were analyzed for principal gamma emitters. No detectable activity was found in these grab samples.
- The discharge canal monitor alarm, also set to alarm at the equivalent of the Appendix B, Table 2, Column 2, concentrations, provides a backup capability to detect abnormal releases of radioactive material in plant effluents. Since 1982, no valid discharge canal monitor alarms have occurred while the monitor was in service. Grab samples taken at 8-hour intervals during periods when the discharge canal monitor was out of service were analyzed for principal gamma emitters. No detectable activity was found in these grab samples.

The safety significance of this event is therefore believed to be very small.

Cause

The cause of this event is an inadequate ODCM procedure for determining the service water discharge monitor alarm setpoint.

(6-1998)

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME(1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
MONTICELLO NUCLEAR GENERATING PLANT	05000263	00	-- 011 --	00	5 of 5

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

Corrective Actions

A change has been issued to the Operations Manual. This change instructs operators to inform the Shift Chemist when circulating water pumps are shutdown. The service water monitor will be considered inoperable and the appropriate Limiting Condition for Operation actions will be taken during the short time required to change the alarm setpoint to a value appropriate for the status of the circulating water pumps.

The procedure in the Monticello ODCM for calculating the service water discharge monitor alarm setpoint will be changed to use a dilution flow rate which is a function of the number of circulating water pumps in operation.

All of the process and effluent monitor alarm setpoints were reviewed for possible interactions related to the mode of plant operation. All other setpoints were found to be appropriate.

The feasibility of lowering the service water discharge monitor alarm to one common setpoint for all modes of plant operation is being evaluated.

Failed Component Identification

Not applicable.

Similar Events

None