

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), 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.

FACILITY NAME (1) MONTICELLO NUCLEAR GENERATING PLANT	DOCKET NUMBER (2) 05000 263	PAGE (3) 1 OF 5
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TITLE (4) Failure of Emergency Service Water Check Valves to Seat Caused by an Accumulation of Silt
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EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	07	92	92	016	01	04	27	93		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
POWER LEVEL (10) 95%	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)						
	20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)						
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vi)	OTHER						
	20.405(a)(1)(iii)	XX 50.73(a)(2)(i)	50.73(a)(2)(vii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)						
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(vii)(B)							
	20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)							

LICENSEE CONTACT FOR THIS LER (12)

NAME Jim Freborg, System Engineer	TELEPHONE NUMBER (Include Area Code) (612) 295-1375
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRRDS
X	BI		V085	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	XX NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On November 7, 1992, during the performance of a scheduled surveillance, two check valves in the Emergency Service Water system failed to seat properly. The valves are the cross-ties between the normal Service Water and Emergency Service Water systems. The failure of the check valves could have affected the cooling water flow to the Division II Control Room Ventilation system and the Division II ECCS pumps. The cause of the event was accumulation of silt in the Emergency Service Water line. The Division II Control Room Ventilation system and the Division II ECCS pumps were declared inoperable, a Safety Evaluation was completed to evaluate the use of manual operator actions, procedures were revised and the Division II Service Water to Emergency Service cross-tie was isolated. The Division II Control Room Ventilation system and Division II ECCS pumps were declared operable. The check valves were inspected and a modification was completed during the 1993 outage. The Emergency Service Water system has been returned to service with increased surveillance testing required. An evaluation will be performed to determine feasibility of replacing the check valves.

REQUIRED NUMBER OF DIGITS/CHARACTERS
FOR EACH BLOCK

BLOCK NUMBER	NUMBER OF DIGITS/CHARACTERS	TITLE
1	UP TO 46	FACILITY NAME
2	8 TOTAL 3 IN ADDITION TO 05000	DOCKET NUMBER
3	VARIES	PAGE NUMBER
4	UP TO 76	TITLE
5	6 TOTAL 2 PER BLOCK	EVENT DATE
6	7 TOTAL 2 FOR YEAR 3 FOR SEQUENTIAL NUMBER 2 FOR REVISION NUMBER	LER NUMBER
7	6 TOTAL 2 PER BLOCK	REPORT DATE
8	UP TO 18 -- FACILITY NAME 8 TOTAL -- DOCKET NUMBER 3 IN ADDITION TO 05000	OTHER FACILITIES INVOLVED
9	1	OPERATING MODE
10	3	POWER LEVEL
11	1 CHECK BOX THAT APPLIES	REQUIREMENTS OF 10 CFR
12	UP TO 50 FOR NAME 14 FOR TELEPHONE	LICENSEE CONTACT
13	CAUSE VARIES 2 FOR SYSTEM 4 FOR COMPONENT 4 FOR MANUFACTURER NPRDS VARIES	EACH COMPONENT FAILURE
14	1 CHECK BOX THAT APPLIES	SUPPLEMENTAL REPORT EXPECTED
15	6 TOTAL 2 PER BLOCK	EXPECTED SUBMISSION DATE

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FACILITY NAME (1)		DOCKET NUMBER (2)		LER NUMBER (6)			PAGE (3)
MONTICELLO NUCLEAR GENERATING PLANT		05000 263		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	OF 2 5
				92	016	01	

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

Description

On November 7, 1992, with the plant operating at 95% rated thermal power, two check valves (EIS Component: V) in the Emergency Service Water (EIS System: BI) system failed to seat properly during a scheduled surveillance test. The check valves are ESW-13 (Service Water to V-EAC-14B) and ESW-14 (Service Water to V-EAC-14B). The two valves are the cross-tie from normal Service Water (EIS System: KG) to the discharge of #14 Emergency Service Water pump (EIS Component: P). During normal operation the Service Water system supplies the cooling water flow through the two check valves for the Division II Control Room Ventilation (EIS System: VI) system and Division II Residual Heat Removal/Core Spray component and room cooling. During abnormal or emergency conditions the Emergency Service water system would supply the cooling water flow and the check valves would close to prevent reverse flow into the service water system.

As a result of the check valve failures, the Division II Control room ventilation system and the Division II Low Pressure ECCS systems were declared inoperable. The Service Water system was isolated from the Division II Control Room Ventilation system and the Division II Control Room Ventilation system was prevented from automatic initiation. The Division I Control Room Ventilation system was placed in operation and procedures have been revised to instruct operations to start #14 Emergency Service Water pump if the Division II Control Room Ventilation is required to be placed in service. A 10 CFR Part 50, Section 50.59 Safety Evaluation was completed to confirm that this method of operation does not involve an unreviewed safety question.

Technical Specification 3.17.A.2 states in part, "With one control room ventilation train inoperable, restore the inoperable train to operable status within seven days or be in hot shutdown within the next 12 hours". Technical Specification 3.5.A.3 requires an orderly shutdown to less than 212 degrees within 24 hours if both Division II Residual Heat Removal pumps and the Core Spray pump are declared inoperable. The check valves were being tested as required by Technical Specification 4.15.B on a quarterly bases. It is reasonable to assume that the check valve failures would have prevented #14 Emergency Service Water pump from performing its intended function if called upon, and that this condition existed for longer than the outage time for the Control room ventilation and low pressure ECCS system. Therefore, this event is reportable as a condition prohibited by Technical Specification, 10 CFR Part 50, Section 50.73(a)(2)(i).

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Cause

The cause of this event was an accumulation of silt on the check valve internals which prevented the check valves from seating. The silt is introduced into the system piping from the Mississippi River which is the source of all plant Service and Emergency Service Water.

Analysis

The purpose of the check valves is to allow the normal Service Water system to supply cooling water flow to the Emergency Service Water system during normal operation. During abnormal or emergency conditions, if the normal Service Water System is unavailable, the Emergency Service Water system will supply the cooling water flow to Control Room Ventilation, High Pressure Coolant Injection (EIIIS System: BJ) room cooler, and the Division II Core Spray (EIIIS System: BM)/ Residual Heat Removal (EIIIS System: BO) room and motor coolers. If the check valves failed to perform their function Emergency Service Water flow could be degraded and adequate cooling may not be available for the Division II Control Room Ventilation system, and the Division II Core Spray/Residual Heat Removal room and motor coolers.

The Division I Control Room Ventilation, Residual Heat Removal Core Spray, and High Pressure Coolant Injection (EIIIS System: BJ) systems were unaffected by the check valve failures and were available to perform their function.

An analysis has been performed which shows that the Core Spray and Residual Heat Removal pumps can be operated for two hours without cooling water flow before they must be declared inoperable. This would allow sufficient time for operator actions if the check valves failed. High temperature in the Core Spray/Residual Heat Removal rooms would be alarmed in the Control Room (EIIIS System: NA) and existing procedures would direct operators to take corrective actions.

Based on the availability of the Division I Control Room Ventilation, Core Spray and Residual Heat Removal systems, the Safety Relief Valves, High Pressure Coolant Injection and the availability of the Division II Core Spray and Residual Heat Removal systems for up to two hours without Emergency Service Water, there were no consequences to the health and safety of the public.

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TEXT (If more space is required, use additional copies of NRC Form 365A) (17)

Corrective Action

The following corrective actions have been completed:

1. The Division II Control Room Ventilation system was declared inoperable.
2. Division II RHR and Core Spray systems were declared inoperable.
3. A 10 CFR Part 50, Section 50.59 Safety Evaluation was performed.
4. The Service Water to Emergency Service Water Cross-tie line was isolated to prevent degraded Emergency Service Water flow if #14 Emergency Service Water pump is placed in operation.
5. Procedures were revised to provide operator actions if Division II Control Room Ventilation is placed in service.
6. Upon completion item #4 above the Division II RHR and Core Spray systems were declared operable.
7. Upon completion of the Safety Evaluation and corrective actions 4 and 5 above the Division II Control Room Ventilation system was declared operable.
8. A modification was completed which allows flushing or isolation for repairs of the service water check valves during plant operation.
9. The check valves were inspected and repaired during the 1993 outage.
10. The quarterly surveillance test is being performed monthly until it is determined that increased testing is no longer required.
11. The check valves have been placed on an accelerated schedule of inspection until it is determined that increased maintenance is no longer required.

The following Action will be completed:

An evaluation will be performed to determine the feasibility of replacing the check valves with valves less susceptible to this type of failure.

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ADDITIONAL INFORMATION

Failed Component Identification:

Manufacturer: Velan Valve Corporation

Figure: B12-0114B-02TS

Valve: 4 Inch Swing Check Valve

Previous Similar Events:

None