Northern States Power Company

414 Nicollet Mall
Minneapolis, Minnesota 55401-1927
Telephone (612) 330-5500

December 7, 1992

Report Required by
10 CFR Part 50, Section 50.73

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

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

Failure of Emergency Service Water Check Valve to Seat, Cause Unknown

The Licensee Event Report for this occurrence is attached. Please contact us if you require further information.

Thomas M Parker
Director of Licensing
Nuclear Generation

c: Regional Administrator - III NRC
Sr Resident Inspector, NRC
NRR Project Manager, NRC
State of Minnesota,
Attn: Kris Sanda

Attachment



IE22
1/1

NRC FORM 366 (6-89)

U.S. NUCLEAR REGULATORY COMMISSION

# LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| MONTICELLO NUCLEAR GENERATING PLANT | 0 5 0 0 0 2 6 3 | 1 OF 0 4 |

TITLE (4)

Failure of Emergency Service Water Check Valve to Seat, Cause Unknown

| 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 NAMES | DOCKET NUMBER(S) |
| 1 1 | 0 7 | 9 2 | 9 2 | — 0 1 6 | — 0 0 | 1 2 | 0 7 | 9 2 | | 0 5 0 0 0 |
| | | | | | | | | | | 0 5 0 0 0 |

| OPERATING MODE (9) | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | |
|---|---|---|---|---|---|
| N | | 20.402(b) | 20.405(c) | 50.73(a)(2)(iv) | 73.71(b) |
| POWER LEVEL (10) | | 20.405(a)(1)(i) | 50.76(c)(1) | 50.73(a)(2)(v) | 73.71(c) |
| 0 9 5 | | 20.405(a)(1)(ii) | 50.36(c)(2) | 50.73(a)(2)(vii) | OTHER (Specify in Abstract below and in Text, NRC Form 366A) |
| | | 20.405(a)(1)(iii) | XX 50.73(a)(2)(i) | 50.73(a)(2)(viii)(A) | |
| | | 20.405(a)(1)(iv) | 50.73(a)(2)(ii) | 50.73(a)(2)(viii)(B) | |
| | | 20.405(a)(1)(v) | 50.73(a)(2)(iii) | 50.73(a)(2)(x) | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER |
|---|---|
| | AREA CODE |
| Jim Freborg, System Engineer | 6 1 2 2 9 5 1 - 1 3 7 5 |

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| X | B I | V | V 0 8 5 | Y | | | | | | | |
| X | B I | V | V 0 8 5 | Y | | | | | | | |

| SUPPLEMENTAL REPORT EXPECTED (14) | | EXPECTED SUBMISSION DATE (15) | MONTH | DAY | YEAR |
|---|---|---|---|---|---|
| XX YES (If yes, complete EXPECTED SUBMISSION DATE) | NO | | 0 5 | 0 1 | 9 3 |

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


On November 7, 1990, 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. The Division II Control Room Ventilation system was 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 was declared operable. The check valves will be inspected during the next available outage to determine the cause and a supplemental report will be submitted.

DESCRIPTION

On November 7, 1992, with the plant operating at 95% rated thermal power, two check valves (EIIS Component: V) in the Emergency Service Water (EIIS 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 (EIIS System: KG) to the discharge of # 14 Emergency Service Water pump (EIIS 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 (EIIS System: VI) system. 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 was 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". 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 seven day allowable outage time for the Control room ventilation system. Therefore this event is reportable as a condition prohibited by Technical Specification, 10 CFR Part 50, Section 50.73(a)(2)(i).

CAUSE

The cause of this event was a failure of the check valves to perform the intended function. The root cause of the check valve failure is unknown at this time. A supplemental report will be submitted when the valves have been inspected and the cause of the failure is determined.

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 (EIIS System: BJ) room cooler, and the Division II Core Spray (EIIS System: BM)/ Residual Heat Removal (EIIS 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, High Pressure Coolant Injection room cooler, and the Division II Core Spray/Residual Heat Removal room and motor coolers.

The Division I Control Room Ventilation, Residual Heat Removal and Core Spray 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. The High Pressure Coolant Injection system requires the room cooler to be operable during operation of the system and may not be available with a degraded cooling water flow. In the event that the High Pressure Coolant Injection was not available the Safety Relief Valves (EIIS component: RV) would be used to control reactor pressure. High temperature in either the High Pressure Coolant Injection or Core Spray/Residual Heat Removal rooms would be alarmed in the Control Room (EIIS 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, 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.

CORRECTIVE ACTION

The following corrective actions have been completed:

1. The Division II Control Room Ventilation system was declared inoperable.

2. A 10 CFR Part 50, Section 50.59 Safety Evaluation was performed.

3. 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.

4. Procedures were revised to provide operator actions if Division II Control Room Ventilation is placed in service.

5. Upon completion of the Safety Evaluation and corrective actions 3 and 4 above the Division II Control Room Ventilation system was declared operable

The following actions will be completed:

1. The check valves will be inspected during the next available outage time and replaced or repaired based on the inspection results.

2. A supplemental report will be submitted with the results of the inspection of the check valves.

ADDITIONAL INFORMATION

Failed Component Identification:

Manufacturer: Velan Valve Corporation
Figure: B12-0114B-02TS
Valve: 4 Inch Swing Check Valve

Previous Similar Events:

There have been two previous similar events. Licensee Event Reports, 87-020-00 (Check Valve Disc Nut Tack Failure Results in Potential High Pressure Coolant Injection System Degradation) and 89-011 (Excessive Check Valve Leakage Constitutes Potential Degradation of High Pressure Coolant Injection System). It is not possible to determine if the corrective actions for these events should have prevented this event until the check valves are inspected.

TRANSMITTAL MANIFEST

NORTHERN STATES POWER COMPANY

NUCLEAR SUPPORT SERVICES DEPARTMENT

MONTICELLO NUCLEAR GENERATING PLANT

Failure of Emergency Service Water Check
Valve to Seat, Cause Unknown

Manifest Date: December 7, 1992 M-RE-92-16

| | | | |
|---|---|---|---|
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| Attn: DCD | 1 | G T Bart | 1 |
| Tony Hsia | 1 | K M Beadell | 1 |
| Regional Admin III | 1 | B D Day | 1 |
| Steve Ray | 1 | E B Earney | 1 |
| State of Minnesota | | L R Eliason | 1 |
| Kris Sanda | 1 | External Comm Dept | 1 |
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| Safety Audit Committee | | SAC Secretary | 1 |
| D J Mendele | 1 | NSS File | 1 |
| A B Cutter | 1 | USAR File | Yes___ No_X |
| R L Hannen | 1 | NRC Commitment | Yes_X No___ |
| F W Hartley | 1 | Response Reminder | Yes_X_Ent___ |
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| D D Lanning | 1 | | |
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Correspondence Date : 12/7/92