

EXPIRES 04/30/98

## 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: 50.0 HRS. REPORTED LESSONS  
LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED  
BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN  
ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-  
6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC  
20585-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104),  
OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

Millstone Nuclear Power Station Unit 2

DOCKET NUMBER (2)

05000336

PAGE (3)

1 OF 3

TITLE (4)

Flow indicators for Chilled Water Flow to Vital East &amp; West Switchgear Room Coolers Indicate Higher than Actual

| EVENT DATE (5)        |     |      | LER NUMBER (6)  |                      |                    | REPORT DATE (7) |  |      | OTHER FACILITIES INVOLVED (8)                    |               |
|-----------------------|-----|------|---|----------------------|--------------------|-----------------|--|------|--|---------------|
| MONTH                 | DAY | YEAR | YEAR  | SEQUENTIAL<br>NUMBER | REVISION<br>NUMBER | MONTH           | DAY  | YEAR | FACILITY NAME                                    | DOCKET NUMBER |
| 12                    | 31  | 96   | 96  | -- 043 --            | 00                 | 01              | 30   | 97   | FACILITY NAME                                    | DOCKET NUMBER |
| OPERATING<br>MODE (9) |     | 6    | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) |                      |                    |                 |  |      |  |               |
| POWER<br>LEVEL (10)   |     | 000  | 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<br>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

R. T. Laudenat, MP Nuclear Licensing Manager

TELEPHONE NUMBER (include Area Code)

(860) 444-5248

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

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE<br>TO NPRDS | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE<br>TO NPRDS |
|-------|--------|-----------|--------------|------------------------|-------|--------|-----------|--------------|------------------------|
|       |        |           |              |                        |       |        |           |              |                        |
|       |        |           |              |                        |       |        |           |              |                        |
|       |        |           |              |                        |       |        |           |              |                        |

## SUPPLEMENTAL REPORT EXPECTED (14)

|   |  |                                     |       |     |      |
|---|--|-------------------------------------|-------|-----|------|
| YES<br>(If yes, complete EXPECTED SUBMISSION DATE): | <input checked="" type="checkbox"/> NO | EXPECTED<br>SUBMISSION<br>DATE (15) | MONTH | DAY | YEAR |
|---|--|-------------------------------------|-------|-----|------|

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

On December 31, 1996 while investigating a low differential pressure on Vital Chilled Water Pump, P122A, it was discovered that the actual flow through FI-8891 and FI-8893, Vital Chilled Water flow indicators to the East and West DC Switchgear Room Coolers, was approximately 29 percent lower than the indicated flow. The flow error was found during a post maintenance test on P122A. Actual flow was verified by an ultrasonic flow indicator. With this flow indication error, the system would need an indicated flow rate of 38 gpm to ensure the actual system design flow rate of 27 gpm was attained. System inservice test procedure SP 21127 required 27 gpm indicated flow to verify the pump discharge check valves would pass design system flow. Therefore, this test did not meet the requirements of ASME Code Section XI, and is a violation of Technical Specification 4.0.5. At the time of discovery, the plant was in Mode 6 at 0 percent power.

The cause of this event was inadequate flow instrument design documentation from initial plant startup.

The affected flow elements orifice dimensions were verified in the field and the system retested at 38 gpm indicated flow, to verify check valve operation at 27 gpm actual flow.

Design calibration calculations for QA/Safety Related orifice plates will be verified and a sample of these calculations will be checked to ensure they are consistent with calibration documentation. This will be completed before entry into Mode 4.

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LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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|  |          | 96             | -- 043 --            | 00                 |          |

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

I. Description of Event

On December 31, 1996 while investigating a low differential pressure on Vital Chilled Water Pump, P122A [KM], it was discovered that the actual flow through FI-8891 and FI-8893, Vital Chilled Water flow indicators to the East and West DC Switchgear Room Coolers [VF], was approximately 29 percent lower than the indicated flow. The flow error was found during a post maintenance test on P122A. Actual flow was verified by an ultrasonic flow indicator. With this flow indication error, the system would need an indicated flow rate of 38 gpm to ensure the actual system design flow rate of 27 gpm was attained. System inservice test procedure SP 21127 required 27 gpm indicated flow to verify the pump discharge check valves would pass design system flow. Therefore, this test did not meet the requirements of ASME Code Section XI, and is a violation of Technical Specification 4.0.5. At the time of discovery, the plant was in Mode 6 at 0 percent power.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as an operation prohibited by the plant's Technical Specifications.

II. Cause of Event

The cause of this event was inadequate flow instrument design documentation from initial plant startup.

III. Analysis of Event

This flow discrepancy had previously been discovered in October of 1991. At that time, an evaluation to determine if this event was reportable was not performed and it was not reported. An Engineering Calculation determined that an indicated flow of 38 gpm was required to have an actual system design flow of 27 gpm. The Chilled Water Operating Procedure, OP 2330C was revised to require the manual throttle valves to be adjusted for 38 gpm indicated flow, to assure the actual system flow was 27 gpm. However, the system inservice test procedure, SP 21127 (Chilled Water Pump System Valves Operational Readiness Test) was not revised to reflect the higher indicated flow requirement. For testing purposes, the flow was reduced to an indicated value of 27 gpm, then restored to 38 gpm at the conclusion of the test. Therefore, required design flows were maintained. The calibration documentation was not revised to allow recalibration to correct the flow error. Also, at that time no review of other flow indicators was initiated to determine the extent of the problem. The reduced flow to the coolers would have resulted in a partial loss of room cooling, eventually resulting in room temperatures above the design basis of 104 degrees F. Exceeding the temperature of 104 would not have caused immediate equipment failure but could have reduced the life of components. Compensatory actions such as opening battery room doors, outside doors or providing portable fans could reduce the temperature below 104 degrees. The battery room exhaust fans, which are powered from vital buses, could provide sufficient cooling for the DC Switchgear rooms when the battery room doors are open.

Technical Specification 4.0.5 requires Millstone Unit 2 (MP2) to meet the requirements of the ASME Boiler and Pressure Vessel Code, Section XI. According to these inservice test requirements, pump discharge check valves must be tested to verify they will pass full system flow.

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

Prior to October 24, 1995, the Vital Chilled Water pumps discharge check valves, 2-CHW-1 and 2-CHW-31, were tested using procedure SP 21127 which required an indicated flow rate of 27 gpm (actual flow approximately 19 gpm). Therefore, the requirements of the ASME Code, Section XI Inservice test requirements were not being met. On October 24, 1995, SP 21127 was revised to require the indicated flow on FI-8891 and FI 8893 of 38 gpm (actual flow 27 gpm), to be in agreement with Operating Procedure OP 2330C.

During the December 1996 investigation, engineering estimates and ultrasonic flow testing verified the current flow calibration was in error. Design documentation could not be located for the Vital Chilled Water flow orifices.

A review has been performed on a sample of flow instrument calibration documentation in other systems which use flow orifices. No safety significant errors were found.

Based on the above, this event is not considered to be safety significant.

IV. Corrective Action

The affected flow elements orifice dimensions were verified in the field and the system retested at 38 gpm indicated flow, to verify check valve operation at 27 gpm actual flow.

Design calibration calculations for QA/Safety Related orifice plates will be verified and a sample of these calculations will be checked to ensure they are consistent with calibration documentation. This will be completed before entry into Mode 4.

V. Additional InformationSimilar Events

No previous similar LERs were found involving flow calibration errors.

Energy Industry Identification System (EIIIS) codes are identified in the text as [XX].