NRC FORM (4-95)		U.S. NUCLEAR REGULATORY COMMISSION							APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98							
(See reverse for required number of digits/characters for each block)									ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATO INFORMATION COLLECTION REQUEST 500 HRS. REPORTED LESS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND BACK TO INDUSTRY FORWARD COMMENTS REGARDING BUR ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH 5 F331, U.S. NUCLEAR REGULATORY COMMISSION. WASHINGTON, 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-01) OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.							
FACILITY NA	ME (1)									DOCKE	T NUMBER (2)		1	PAG	E (3)	
		Mill	Millstone Nuclear Power Station Unit 2								05000336			1 OF 3		
Flow inc	licator	s for C	hilled	Water Flow to	Vital East	& We	st Sw	tchge	ar F	Room	Coolers Ir	dicate Hi	gher	than a	Actual	
EVENT DATE (5)			5) LER NUMBER (6) REP(					EPORT DATE (7)			OTHER FACILITIES INVOLVED (8)					
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONT	H DA	Y YE	AR	FACILI	ILITY NAME		DOCKET NUMBER			
12	31	96	96	043	00	01	30	9	7	FACILI	ILITY NAME			DOCKET NUMBER		
OPERA	TING		THIS F	REPORT IS SUBMIT	TED PURSU	ANT TO	THE RE	QUIREN	IENT	TS OF	10 CFR 5: (C	heck one or	more	) (11)		
MODE (9)		6	20.2201(b)			20.2203(a)(2)(v)				X 50.73(a)(2)(i)			50.73(a)(2)(viii)			
POWER LEVEL (10)		000	20	20.2203(a)(1) 20.2203(a)(2)(i)			20.2203(a)(3)(i) 20.2203(a)(3)(ii)				50.73(a)(2)(ii) 50.73(a)(2)(iii)			50.73(a)(2)(x)		
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			20	20.2203(a)(4)				50.73(a)(2)(iv)			OTHER					
			20.2203(a)(2)(iii)				50.36(c)(1)			50.73(a)(2)(v) 50.73(a)(2)(vii)		Specify in Abstract below				
			20.2203(a)(2)(iv)			50.36(c)(2)			2)(vii)			or in NHC Form 366A				
and the second second second	Contract in contractory				LICENSEE	CONTAG	CT FOR	THIS LI	R (1	12)			-			
NAME		R. T. I	auden	at, MP Nuclea	ar Licensin	g Man	ager	-		1	ELEPHONE NUM	(860) 44	ea Code 44-5:	248		
			CON	PLETE ONE LINE F	OR FACH C	OMPONE	NT FAI	URE D	ESC	RIBED	IN THIS REPO	BT (13)				
CAUSE	SYS	TEM CO	MPONENT	NENT MANUFACTURER	REPORTABL TO NPRDS	E	CAUS	USE	SYS	STEM	COMPONENT	MANUFACTURER		REPORTABLE TO NPRDS		
		SUP	PLEMEN	TAL REPORT EXPE	CTED (14)					EXPE	CTED	MONTH		DAY	YEAR	
YES (If yes, complete EXPECTED SUBMISSION DATE).						XN	10		-	DATE	SSION (15)	ten kononin inn kene konolin				

discovered that the actual flow through FI-8891 and FI-8893, Vital Chilled Water Found, F122A, it was 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.

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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.

NRC FORM 366A (4-55)				U.S. NUCLEAR REGULATORY COMMISSIO						
1	TEXT C	<b>ENT REPORT (I</b>	LER)							
FACILITY NAME (1)		DOCKET		LER NUMBER	PAGE (3)					
Millstone Nuclear Power Station	Unit 2	05000336	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3				
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

### 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.

NRC FORM 366A (4-95)				U.S. NUCLE	AR REGULATO	RY COMMISSION
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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 documachation. This will be completed before entry into Mode 4.

#### V. Additional Information

Similar Events

No previous similar LERs were found involving flow calibration errors.

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