

**Dominion Nuclear  
Connecticut, Inc.**

Lorrie A. Arzamarski  
Millstone Nuclear Power Station  
Dominion Nuclear Connecticut, Inc.  
Rope Ferry Road  
Waterford, CT 06385

June 28, 2001

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

Dear Document Control Desk:

Attached is a copy of B18430, which contains License Event Report 2001-003-00. Due to a minor administrative error, the LER was sent out without the report date filled in. Here is the updated version of the LER with the report date included. Please use this letter as the official letter. If you have any questions, please contact me at (860) 447-1791 x3196.

Sincerely,

Lorrie Arzamarski  
Regulatory Affairs, Millstone Station

Attachments: Dominion Letter B18430, LER 2001-003-00

IE22

Dominion Nuclear Connecticut, Inc.  
Millstone Power Station  
Rope Ferry Road  
Waterford, CT 06385



**Dominion™**

JUN 26 2001

Docket No. 50-336  
B18430

RE: 10 CFR 50.73(a)(2)(iv)

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

Millstone Nuclear Power Station, Unit No. 2  
Licensee Event Report 2001-003-00  
Reactor Trip Resulting From Loss of "C" Circulating Water Pump

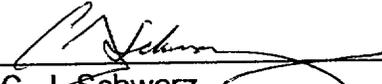
This letter forwards Licensee Event Report (LER) 2001-003-00, documenting an event that occurred at Millstone Nuclear Power Station, Unit No. 2 on April 29, 2001. This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A).

There are no regulatory commitments contained within this letter.

Should you have any questions regarding this submittal, please contact Mr. David W. Dodson at (860) 447-1791, extension 2346.

Very truly yours,

DOMINION NUCLEAR CONNECTICUT, INC.

  
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C. J. Schwarz  
Master Process Owner - Operate the Asset

Attachment (1): LER 2001-003-00

cc: H. J. Miller, Region I Administrator  
J. T. Harrison, NRC Project Manager, Millstone Unit No. 2  
S. R. Jones, Senior Resident Inspector, Millstone Unit No. 2

Docket No. 50-336  
B18430

Attachment 1

Millstone Nuclear Power Station, Unit No. 2

LER 2001-003-00

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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)**

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

<b>FACILITY NAME (1)</b> Millstone Nuclear Power Station - Unit # 2	<b>DOCKET NUMBER (2)</b> 05000336	<b>PAGE (3)</b> 1 OF 4
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**TITLE (4)**  
Unit 2 Reactor Trip resulting from Loss of "C" Circulating Water Pump

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	29	2001	2001	003	00	06	26	2001	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

<b>OPERATING MODE (9)</b> 1	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)</b>									
	20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)						
<b>POWER LEVEL (10)</b> 097	20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)						
	20.2203(a)(1)	50.36(c)(1)(i)(A)	X 50.73(a)(2)(iv)(A)	73.71(a)(4)						
	20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)						
	20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER	Specify in Abstract below or in NRC Form 366A					
	20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)							
	20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)							
	20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)							
	20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)							
	20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)							

**LICENSEE CONTACT FOR THIS LER (12)**

<b>NAME</b> David W. Dodson, Team Lead - Compliance	<b>TELEPHONE NUMBER (Include Area Code)</b> 860-447-1791
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**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

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>				<b>EXPECTED SUBMISSION DATE (15)</b>		
<input type="checkbox"/> 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)**

On April 29, 2001, with the plant at 97 percent power an automatic plant trip occurred due to a degraded condenser vacuum caused by both Circulating Water pumps (CWP) in one condenser not operating. In preparation for testing the "D" CWP following maintenance activities performed on it, electricians inadvertently caused the "C" CWP to trip when attempting to install a jumper in the "D" CWP breaker cubicle. The loss of circulating water resulted in a degrading condenser vacuum which then caused an automatic turbine trip. The turbine trip caused the reactor to automatically trip. Following the trip, all safety systems functioned as required. The auxiliary feedwater system auto started due to low steam generator (S/G) level caused by S/G level shrink following the reactor trip.

The root cause of this event was determined to be inadequate procedures that did not include the correct information or require the correct verifications.

Following the plant trip, work was stopped and briefs were conducted with the appropriate groups to reinforce work expectations. All lifting of leads or installation of jumpers not controlled by an approved procedure will require additional supervisor review. To prevent recurrence a procedure is being developed to provide guidance to control the running/bumping of motors following on-line maintenance.

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Millstone Nuclear Power Station Unit # 2	05000336	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		2001	- 003 -	00	

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

1. Event Description

On April 29, 2001, with the plant at 97 percent power an automatic plant trip occurred due to a degraded condenser [COND] [SG] vacuum caused by both Circulating Water pumps [P] (CWP) in one condenser not operating. In preparation for testing the "D" CWP following maintenance activities performed on it, electricians inadvertently caused the "C" CWP to trip when attempting to install a jumper in the "D" CWP breaker [BKR] cubicle. The loss of circulating water resulted in a degrading condenser vacuum which then caused an automatic turbine [TRB] [TA] trip. The turbine trip caused the reactor [RCT] to then automatically trip.

During the performance of circulating water pump and motor [MO] overhaul, it becomes necessary to start or bump the motor uncoupled from the pump. This is done to ensure proper rotation of the motor and to verify that vibration levels are not excessive. This has historically been done during outage times. This evolution was recently changed to an on-line activity. On April 15, 2001, this evolution was successfully performed on the 'C' CWP. It was necessary to install a jumper to override interlock contacts in the 'C' CWP control circuits that would otherwise prevent starting the motor. One jumper was used to bypass all interlock contacts. The motor was successfully run uncoupled and the remainder of the overhaul activity completed without mishap.

The uncoupled run of 'D' CWP was moved up 24 hours and scheduled for performance on Sunday, April 29, 2001. One of the electricians that was ultimately called in for this evolution contacted the on site mechanical team lead to inquire about the need to install jumpers based on his discussion with the mechanical team lead involved in successful performance of 'C' CWP bump two weeks earlier. The mechanical team lead confirmed existing plant conditions and the need to install a jumper to perform the motor bump. The mechanical team lead then contacted the on-call electrical team lead who provided the names of the two electricians to call in to install the jumper. The electricians were contacted.

Upon arrival on site, the two electricians discussed the evolution with the mechanical team lead. The mechanical team lead deferred review and decision on jumper installation to operations, feeling he lacked the necessary knowledge. The electricians reviewed the work order and referenced drawing and decided that the 'D' waterbox inlet valve [V] contacts in the start circuit would need to be bypassed to allow starting the motor. This was discussed with operations work control and the Plant Equipment Operator (PEO) who both concurred with the proposed jumper installation.

The electricians proceeded to install a ring lug jumper in the 'D' CWP breaker cubicle. Once this jumper was installed, operations personnel unsuccessfully attempted to start the 'D' CWP motor. Following the failed attempt, the electricians obtained the work order and prints from the shop and returned to the control room to discuss the situation with operations. The electricians, operations work control, the shift manager and the PEO discussed the installation of additional jumpers without understanding why the first jumper did not produce the desired response. The electricians suggested bypassing all interlock contacts in the 'D' CWP start circuit. The shift manager and PEO concurred with bypassing all interlock contacts.

In preparation to bypass all interlock contacts in the "D" CWP start circuit, the breaker was racked down and all control fuses [FU] were removed. The electricians then removed the end of the first jumper they had connected and then removed the terminal screw at the point that actually crossed over to the 'C' CWP breaker. Loosening this terminal point broke the connection to the 'C' CWP relay which resulted in the 'C' CWP pump trip.

The "C" CWP was restarted and condenser vacuum improved, however a short time later the turbine tripped followed by an automatic reactor trip. Following the trip, all safety systems functioned as required. The auxiliary

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

feedwater system automatically started due to low steam generator (S/G) level caused by S/G level shrink following the reactor trip.

This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in the automatic actuation of the reactor protection system (RPS), including a reactor trip, and the Auxiliary Feedwater System.

2. Cause

The root cause of this event was determined to be inadequate procedures that did not include the correct information or require the correct verifications.

There is no specific procedural guidance for the installation of jumpers or how to bump the motor during circulating water pump overhaul. Given the lack of procedural guidance, specific instructions in the job description of the work order might have been appropriate. If proper instructions were available for the installation of jumpers, this event could have been avoided regardless of all other barriers. In addition to the lack of guidance, there were several occasions leading up to the evolution and during the evolution that someone should have questioned the lack of guidance and stopped the evolution, thus preventing the unit trip.

3. Assessment of Safety Consequences

The circulating water pumps provide water flow through the steam condenser that allows steam exiting the turbine to be condensed into water. In the normal plant configuration the "C" and "D" CWP's provide water flow through the "C" and "D" waterboxes in parallel. In the event that one pump is not running, the remaining pump provides flow through both waterboxes through a cross-tie valve. Loss of the remaining pump results in a complete loss of water flow through both water boxes.

This event was of low safety significance. The reactor trip was uncomplicated and all safety functions were accomplished per design without complications.

4. Corrective Action

Following the plant trip, work was stopped and briefs were conducted with the appropriate groups. Management expectation to stop all work if the expected results are not achieved was reinforced. Additionally, all lifting of leads or installation of jumpers not already controlled by an approved procedure will require review by the applicable supervisor who is to fully question the work activity and acquire the additional assistance of the proper supervisor should the work activity fall outside the original supervisor's field of expertise.

To prevent recurrence a procedure is being developed by November 1, 2001 to provide guidance to control the running/bumping of motors following on-line maintenance. Additionally, to improve upon the human performance element of this event, the internal operating experience team will communicate to the site the circumstances of this event, the extent of condition and management expectations for maintaining a questioning attitude.

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		2001	- 003	- 00	

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

Additional corrective actions are being addressed via the Millstone Corrective Action Program.

5. Previous Occurrences

No previous similar events were identified.

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