

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



Dominion™

APR 28 2003

Docket No. 50-336
B18890

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

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

Millstone Power Station, Unit No. 2
Licensee Event Report 2003-002-00
Reactor Trip While Performing RPS Matrix Testing

This letter forwards Licensee Event Report (LER) 2003-002-00, documenting a condition that was discovered at Millstone Unit No. 2, on March 7, 2003. 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.

Stephen P. Sarver, Director
Nuclear Station Operations and Maintenance

Attachment (1): LER 2003-002-00

cc: H. J. Miller, Region I Administrator
R. B. Ennis, NRC Senior Project Manager, Millstone Unit No. 2
Millstone Senior Resident Inspector

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Attachment 1

Millstone Power Station, Unit No. 2

LER 2003-002-00

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, NE0B-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)

FACILITY NAME (1) Millstone Power Station - Unit 2	DOCKET NUMBER (2) 05000336	PAGE (3) 1 OF 2
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TITLE (4)
Reactor Trip While Performing RPS Matrix Testing

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
03	07	2003	2003	002	00	04	28	2003	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) (11)								
		20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)					
POWER LEVEL (10)	100	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)(i)	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)

NAME David W. Dodson, Supervisor-Licensing	TELEPHONE NUMBER (Include Area Code) 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

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR	
<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 March 7, 2003, at 1439, with the unit in Mode 1 at 100% power, an automatic reactor trip occurred during normal monthly Reactor Protection System (RPS) matrix testing due to a fault in the test circuitry. Specifically, Control Rod Drive trip circuit breaker (TCB) pair TCB-1 and TCB-5 tripped open in addition to the expected opening of TCB pair TCB-3 and TCB-7 when AC Matrix Relay Trip Select switch was rotated to position "3." The opening of both pairs of trip breakers resulted in a reactor trip from full power followed by an automatic turbine trip. All control rods inserted into the core and all electrical busses transferred properly following the trip. Auxiliary Feedwater (AFW) initiated as expected, on low steam generator level. The post-trip plant response was complicated by several additional equipment failures, the most notable being a malfunction of the charging system leading to a loss of all charging. This latter condition is addressed in a separate report.

The root cause of the event was historical in nature and determined to be poor workmanship of the original RPS matrix test module dating back to plant startup. Specifically, the keying pin hole was drilled too large in the adapter plate for the AC matrix relay trip select switch (Micro switch model X6210-25AS4-7448) allowing excessive movement of the switch. This movement, in addition to poor quality of soldering and lack of wiring strain relief in the test module, caused strain failure of the wiring at the switch terminal joint.

Corrective actions to prevent recurrence included re-drilling the switch keying pin hole to remove excessive switch play, and to inspect for and repair damaged wiring and provide adequate strain relief for wiring as necessary, in the RPS matrix test module. These actions were completed prior to startup.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
Millstone Power Station - Unit 2	05000336	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 2
		2003	-- 002 --	00	

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

1. Event Description

On March 7, 2003, at 1439, with the unit in Mode 1 at 100% power, an automatic reactor trip occurred during normal monthly Reactor Protection System (RPS) [JC] matrix testing due to a fault in the test circuitry. Specifically, Control Rod Drive trip circuit breaker (TCB) pair TCB-1 and TCB-5 tripped open in addition to the expected opening of TCB pair TCB-3 and TCB-7 when AC Matrix Relay Trip Select switch was rotated to position "3." The opening of both pairs of trip breakers resulted in a reactor trip from full power followed by an automatic turbine trip. All control rods inserted into the core and all electrical busses transferred properly following the trip. Auxiliary Feedwater (AFW) [BA] initiated as expected, on low steam generator level. The post-trip plant response was complicated by several additional equipment failures, the most notable being a malfunction of the charging system leading to a loss of all charging. This latter condition is addressed in a separate report.

This event is being reported pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in automatic actuation of RPS and AFW.

2. Cause

The root cause of the event was historical in nature and determined to be poor workmanship of the original RPS matrix test module dating back to plant startup. Specifically, the keying pin hole was drilled too large in the adapter plate for the AC matrix relay trip select switch (Micro switch model X6210-25AS4-7448) allowing excessive movement of the switch. This movement, in addition to poor quality of soldering and lack of wiring strain relief in the test module, caused strain failure of the wiring at the switch terminal joint.

3. Assessment of Safety Consequences

The RPS test circuit consists of selector switches that dial in the select TCBs to open, however, until the RPS test pushbutton is depressed, the contacts and mounting of the switch are out of the circuit. There was no adverse impact on the ability of the RPS to performing its safety function as required by the Technical Specifications. The safety consequences of the strain failure of the switch wiring alone did not pose any more of a safety consequence than that of a normal reactor trip. The risk associated with a reactor trip is generally considered the same as for any general plant transient. For these reasons, the safety significance of this event is considered low and no loss of safety function occurred. Loss of safety function associated with the charging system is addressed in a separate report.

4. Corrective Action

Corrective actions to prevent recurrence included re-drilling the switch keying pin hole to remove excessive switch play, and to inspect for and repair damaged wiring, and provide adequate strain relief for wiring as necessary, in the RPS matrix test module. These actions were completed prior to startup. An extent of condition review determined that the strain failure of the wiring was limited to matrix relay trip select switches in the RPS test modules requiring adapter plates, and additional suspect switches were replaced during troubleshooting. An investigation was conducted and additional corrective actions will be entered into the Millstone Corrective Action program.

5. Previous Occurrences

No previous similar events/conditions were identified.

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