

Michel A. Philippon
Plant General Manager

P.O. Box 63
Lycoming, New York 13093
315.349.5205
315.349.1321 Fax

CENGSM

a joint venture of



NINE MILE POINT
NUCLEAR STATION

June 3, 2013

U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Nine Mile Point Nuclear Station
Unit No. 1; Docket No. 50-220

Licensee Event Report 2012-007, High Pressure Coolant Injection System Logic Actuation Following an Automatic Turbine Trip Signal Due to High Reactor Water Level

In accordance with 10 CFR 50.73(a)(2)(iv)(A), please find attached Licensee Event Report (LER) 2012-007, High Pressure Coolant Injection System Logic Actuation Following an Automatic Turbine Trip Signal Due to High Reactor Water Level. The event notification per 10 CFR 50.72(b)(3)(iv)(A) for the High Pressure Coolant Injection (HPCI) system actuation was initially completed on November 6, 2012 (Event Number 48481). This notification was subsequently retracted on December 17, 2012, on the basis that the actuation was invalid. Following further review, on April 24, 2013, Nine Mile Point Nuclear Station, LLC (NMPNS) confirmed that the event did constitute a valid actuation of the HPCI system and was reportable per 10 CFR 50.72(b)(3)(iv)(A). NMPNS recognizes that, based on the initial date of occurrence of the event, submittal of this LER is not timely.

There are no regulatory commitments in this submittal.

Should you have questions regarding the information in this submittal, please contact John J. Dosa, Director Licensing, at (315) 349-5219.

Very truly yours,

A handwritten signature in black ink, appearing to read "M. Philippon".

MAP/DEV

IE22
MLK

Document Control Desk
June 3, 2013
Page 2

Attachment: Licensee Event Report 2012-007, High Pressure Coolant Injection System Logic Actuation Following an Automatic Turbine Trip Signal Due to High Reactor Water Level

cc: Regional Administrator, NRC
Project Manager, NRC
Resident Inspector, NRC

ATTACHMENT

LICENSEE EVENT REPORT 2012-007

**HIGH PRESSURE COOLANT INJECTION SYSTEM LOGIC
ACTUATION FOLLOWING AN AUTOMATIC TURBINE TRIP SIGNAL
DUE TO HIGH REACTOR WATER LEVEL**

**Nine Mile Point Nuclear Station, LLC
June 3, 2013**

LICENSEE EVENT REPORT (LER)
(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an 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.

1. FACILITY NAME Nine Mile Point Unit 1	2. DOCKET NUMBER 05000220	3. PAGE 1 OF 6
---	-------------------------------------	--------------------------

4. TITLE
High Pressure Coolant Injection System Logic Actuation Following an Automatic Turbine Trip Signal Due to High Reactor Water Level

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	06	2012	2012	007	00	06	03	2013	None	NA
									FACILITY NAME	DOCKET NUMBER
									None	NA

9. OPERATING MODE N	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)			
10. POWER LEVEL 000	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

NAME John J. Dosa, Director Licensing	TELEPHONE NUMBER (Include Area Code) (315) 349-5219
--	--

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
A	SJ	FCV	Fisher	Y					

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH NA	DAY NA	YEAR NA
--	-------------------------------------	-------------	-----------	------------

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

On November 6, 2012, while in the cold shutdown reactor operating condition, Nine Mile Point Unit 1 experienced an unexpected rise in reactor water level that caused an automatic turbine trip signal and actuation of the High Pressure Coolant Injection (HPCI) initiation logic. The HPCI system is a mode of operation that uses selected equipment of the condensate and feedwater system to perform its function. The HPCI system is not an emergency core cooling system. At the time of the event, the HPCI system was not required to be operable. Though the HPCI initiation logic was actuated, HPCI system injection into the reactor vessel neither occurred nor was required.

The rise in reactor water level resulted from the unexpected opening of the 12 Feedwater flow control valve (FCV) during the application of a tagout to perform feedwater level control circuitry maintenance that was caused by a failure to use adequate human performance tools when performing the last periodic test of the feedwater FCVs. This resulted in the testing being performed improperly such that degradation of o-rings within the FCV actuator lockup valves was not detected. The o-ring degradation prevented the lockup valves from maintaining the FCV in the closed position.

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event or condition that resulted in automatic actuation of the HPCI system.

To prevent recurrence, maintenance personnel have been briefed on the importance of continual use of human performance tools, and the applicable FCV test procedure has been revised to provide additional guidance for properly testing the FCV actuator lockup valves.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE	
Nine Mile Point Unit 1	05000220	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF 6
		2012	007	00		

NARRATIVE

I. DESCRIPTION OF EVENT

A. PRE-EVENT PLANT CONDITIONS:

Prior to and during the event, Nine Mile Point Unit 1 (NMP1) was in the cold shutdown reactor operating condition with the reactor pressure at 0 psig. The main turbine had been reset in preparation for plant startup, which enabled the automatic turbine trip circuitry.

B. EVENT:

On November 6, 2012, the 12 Feedwater flow control valve (FCV-29-137) opened unexpectedly during the application of a tagout for the performance of maintenance on the reactor feedwater level control circuitry, causing reactor water level to rise. Plant operators tripped the 11 Control Rod Drive (CRD) pump and initiated closure of the 12 Feedwater pump discharge blocking valve (VLV-29-09) to control reactor water level; however, while the blocking valve was stroking closed, the reactor water level continued to rise causing an automatic turbine trip signal on high reactor water level at 0006 hours, which then resulted in actuation of the High Pressure Coolant Injection (HPCI) channels 11 and 12 initiation logic, by design. Full closure of the 12 Feedwater pump discharge blocking valve terminated the rise in reactor water level. The operators stabilized reactor water level by using reject flow from the reactor water cleanup system and by re-starting the 11 CRD pump. The operators also observed that local indication was showing the 12 Feedwater flow control valve (FCV-29-137) to be in mid-position.

Flow control valve FCV-29-137 has a double-acting actuator that is designed to fail in place (lockup) on a loss of supply air pressure. The tagout required the removal of two fuses that de-energized a solenoid operated valve, allowing air to port from the actuator of FCV-29-137. This should have resulted in closure of the bottom and top cylinder lockup valves (BV-29-231 and BV-29-232), thereby maintaining FCV-29-137 in the closed position. Subsequent troubleshooting determined that FCV-29-137 partially opened due to a degraded top cylinder lockup valve o-ring. Hardening of the o-ring likely allowed air on top of the cylinder to leak by to atmosphere.

HPCI is a mode of operation of the condensate and feedwater system that utilizes the condensate storage tanks, main condenser hotwell, two condensate pumps, condensate filters and demineralizers, two feedwater booster pumps, feedwater heaters, two motor-driven feedwater pumps, an integrated control system, and associated piping and valves. The HPCI system is not an emergency core cooling system and is not considered in any loss of coolant accident analyses. It is available to provide core cooling in the event of a small reactor coolant line break which exceeds the capability of the CRD pumps. HPCI is automatically initiated by a reactor vessel low level signal, a turbine trip, or excessive flow through an individual feedwater pump.

At the time of the event on November 6, 2012, with the reactor in cold shutdown, the main turbine was not in service and the HPCI system was not required to be operable. In this operating condition, the feedwater booster pumps were not in service. Without the booster pumps operating, the feedwater pumps' start permissive circuitry is not satisfied. Therefore, though the HPCI initiation logic was actuated, no HPCI components actually started or actuated, and HPCI system injection into the reactor vessel neither occurred nor was required.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Nine Mile Point Unit 1	05000220	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 6
		2012	007	00	

NARRATIVE

There was no impact on Nine Mile Point Unit 2 from this event.

The event notification per 10 CFR 50.72(b)(3)(iv)(A) for the HPCI system actuation was initially completed on November 6, 2012 at 0356 hours (Event Number 48481). This notification was subsequently retracted on December 17, 2012, on the basis that the actuation was invalid. Following further review, on April 24, 2013, Nine Mile Point Nuclear Station, LLC (NMPNS) confirmed that the event did constitute a valid actuation of the HPCI system and was reportable per 10 CFR 50.72(b)(3)(iv)(A). NMPNS recognizes that, based on the initial date of occurrence of the event, submittal of this LER is not timely.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

Prior to the event, there were no inoperable structures, systems, or components that contributed to the event.

D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

On November 6, 2012, the 12 Feedwater flow control valve (FCV-29-137) opened unexpectedly, causing reactor water level to rise. An automatic turbine trip signal on high reactor water level occurred at 0006 hours, which then resulted in actuation of the HPCI channels 11 and 12 initiation logic, by design. The operators closed the 12 Feedwater pump discharge blocking valve to terminate the rise in reactor water level.

E. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:

None.

F. METHOD OF DISCOVERY:

This event was discovered by operator observation of control room indication of rising reactor water level following application of the tagout for the performance of maintenance on the reactor feedwater level control circuitry.

G. MAJOR OPERATOR ACTION:

Upon observing the rising reactor water level indication in the control room, the operators tripped the 11 CRD pump and closed the 12 Feedwater pump discharge blocking valve (VLV-29-09) to control reactor water level. The operators stabilized reactor water level by using reject flow from the reactor water cleanup system and by re-starting the 11 CRD pump.

H. SAFETY SYSTEM RESPONSES:

The HPCI system initiation logic actuated in response to the automatic turbine trip signal, as designed. No other safety system responses occurred or were required as a result of this event.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Nine Mile Point Unit 1	05000220	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 6
		2012	007	00	

NARRATIVE

II. CAUSE OF EVENT:

The cause of this event is failure to use adequate human performance tools (specifically, a questioning attitude) when performing periodic testing of the feedwater flow control valves in accordance with procedure N1-IPM-029-010, "Calibration of Feedwater FCV-29-134, FCV-29-137, and FCV-29-141." The procedure tests the functioning of the lockup valves by applying air pressure to the top and bottom cylinders of the flow control valve actuator and then determining the amount of air pressure decrease over a 5-minute time period. A pressure decrease of 20 percent or more in either cylinder indicates that the lockup valve should be re-built. The last time that this test was performed in March 2011, the test was performed improperly in that the lockup valve pressure drop test was conducted without the actuating cylinder being pressurized. The test personnel did not question the test results when zero test pressure was measured. Thus, since performance of procedure N1-IPM-029-010 did not detect the degraded lockup valve o-rings, no corrective actions were taken. In addition, there is no preventive maintenance activity to re-build the lockup valves at any given frequency; thus, the lockup valve o-ring degradation was not identified and corrected prior to the event that occurred on November 6, 2012.

This event was entered into the NMPNS corrective action program as condition report number CR-2012-010141.

III. ANALYSIS OF THE EVENT:

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) as an event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph 10 CFR 50.73 (a)(2)(iv)(B). The NMP1 HPCI system is a feedwater coolant injection system, which is one of the systems listed in 10 CFR 50.73(a)(2)(iv)(B).

There were no actual safety consequences associated with this event. The unexpected opening of the 12 Feedwater flow control valve (FCV-29-137) resulted in a rising reactor water level that caused a turbine trip signal, which then resulted in actuation of the HPCI channels 11 and 12 initiation logic, by design. HPCI is a mode of operation that utilizes selected equipment of the condensate and feedwater system to perform its function. The HPCI system is not an emergency core cooling system and is not considered in any loss of coolant accident analyses. It is available to provide core cooling in the event of a small reactor coolant line break which exceeds the capability of the CRD pumps.

At the time of the event on November 6, 2012, with the reactor in cold shutdown, the main turbine was not in service and the HPCI system was not required by the NMP1 Technical Specifications to be operable. Though the HPCI initiation logic was actuated, no HPCI components actually started or actuated, and HPCI system injection into the reactor vessel neither occurred nor was required, since adequate core cooling was already being provided. Plant parameters other than reactor water level remained within normal values throughout the event.

Based on the above, it is concluded that the actual safety significance of this event is low and the event did not pose a threat to the health and safety of the public or plant personnel.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Nine Mile Point Unit 1	05000220	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 6
		2012	007	00	

NARRATIVE

IV. CORRECTIVE ACTIONS:

A. ACTION TAKEN TO RETURN AFFECTED SYSTEMS TO PRE-EVENT NORMAL STATUS:

Immediate actions were taken by the operators to terminate the rise in reactor water level and to restore reactor water level to the operating band. With the plant already in the cold shutdown condition, no further actions were required.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

1. The rubber goods in the lockup valves for the 11 and 12 Feedwater flow control valves (FCV-29-141 and FCV-29-137) were replaced.
2. Instrumentation and Controls maintenance personnel were briefed on this event, including the importance of the continual use of human performance tools when performing maintenance tasks.
3. A change to procedure N1-IPM-029-010 was processed to clearly define the minimum starting air pressure required prior to commencing the lockup valve test.

V. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

The lockup valves (BV-29-231 and BV-29-232) for Feedwater flow control valve FCV-29-137.

B. PREVIOUS LERs ON SIMILAR EVENTS:

There have been several previous LERs for events involving a turbine trip and subsequent actuation of the HPCI system initiation logic (LERs 2006-002, 2009-002, and 2012-005). The causes and actions described in these previous LERs were different than the current event and would not have prevented this event.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Nine Mile Point Unit 1	05000220	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	6 OF 6
		2012	007	00	

NARRATIVE

C. THE ENERGY INDUSTRY IDENTIFICATION SYSTEM (EIIS) COMPONENT FUNCTION IDENTIFIER AND SYSTEM NAME OF EACH COMPONENT OR SYSTEM REFERRED TO IN THIS LER:

<u>COMPONENT</u>	<u>IEEE 803 COMPONENT IDENTIFIER</u>	<u>IEEE 805 SYSTEM IDENTIFICATION</u>
Feedwater System	---	SJ
Feedwater Flow Control Valve	FCV	SJ
Feedwater Isolation Valve	ISV	SJ
High Pressure Coolant Injection System	---	SJ
Main Turbine/Supervisory Control	TRB	JJ
Reactor Vessel	RPV	AD
Control Rod Drive Pump	P	AA

D. SPECIAL COMMENTS:

None