



10 CFR 50.73

NMP2L273010
May 4, 2020

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Nine Mile Point Nuclear Station, Unit 2
Renewed Facility Operating License No. NPF-69
Docket No. 50-410

Subject: NMP2 Licensee Event Report 2020-001, Manual Scram due to an Electro-Hydraulic Control Fluid Leak on the Turbine Control System

In accordance with the reporting requirements contained in 10 CFR 50.73(a)(2)(iv)(A), please find enclosed NMP2 Licensee Event Report 2020-001, Manual Scram due to an Electro-Hydraulic Control Fluid Leak on the Turbine Control System.

There are no regulatory commitments contained in this letter.

Should you have any questions regarding the information in this submittal, please contact Brandon Shultz, Site Regulatory Assurance Manager, at (315) 349-7012.

Respectfully,

A handwritten signature in cursive script that reads "Todd A. Tierney".

Todd A. Tierney
Plant Manager, Nine Mile Point Nuclear Station
Exelon Generation Company, LLC

TAT/DJW

Enclosure: NMP2 Licensee Event Report 2020-001, Manual Scram due to an Electro-Hydraulic Control Fluid Leak on the Turbine Control System

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

TEZZ

NRR

Enclosure

NMP2 Licensee Event Report 2020-001

Manual Scram due to an Electro-Hydraulic Control Fluid Leak on the Turbine Control System

Nine Mile Point Nuclear Station, Unit 2

Renewed Facility Operating License No. NPF-69

**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollect.Resource@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 2

2. DOCKET NUMBER

05000410

3. PAGE

1 OF 5

4. TITLE

Manual Scram due to an Electro-Hydraulic Control Fluid Leak on the Turbine Control System

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
3	04	2020	2020	- 001	- 00	05	04	2020	N/A	N/A
9. OPERATING MODE			11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)							
1			<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)		
			<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)		
			<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)		
			<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)		
10. POWER LEVEL 88			<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)		
			<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)		
			<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)		
			<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)(D)		<input type="checkbox"/> 73.77(a)(2)(i)		
			<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)		
			<input type="checkbox"/> 50.73(a)(2)(i)(C)			<input type="checkbox"/> OTHER		Specify in Abstract below or in NRC Form 366A		

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

Brandon Shultz, Site Regulatory Assurance Manager

TELEPHONE NUMBER (Include Area Code)

(315) 349-7012

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
D	TG	ACC	GE	Y	N/A	N/A	N/A	N/A	N/A

14. SUPPLEMENTAL REPORT EXPECTED☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO**15. EXPECTED SUBMISSION DATE**

MONTH DAY YEAR

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

On March 4, 2020 at 12:05, Nine Mile Point Unit 2 (NMP2) inserted a manual reactor scram due to lowering Electro-Hydraulic Control System (EHC) level in the turbine control system. An un-isolable leak occurred when a ½-inch stainless steel tube failed on the EHC supply header. The plant responded as designed following the manual scram with all safety systems remaining in a normal standby lineup. This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) as any event or condition that resulted in a manual or automatic actuation of any of the systems listed in 10 CFR 50.73(a)(2)(iv)(B).

The cause of the event is inadequate procedure quality that prevented the performance of appropriate preventative maintenance resulting in cyclic fatigue failure of the EHC line. The corrective actions include improving the preventative maintenance procedure and system monitoring strategies.

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Nine Mile Point Unit 2	05000410	2020	- 001	- 00

NARRATIVE**I. DESCRIPTION OF EVENT****A. PRE-EVENT PLANT CONDITIONS:**

Prior to the event, NMP2 was operating at 88% reactor power.

B. EVENT:

At 11:34 on March 4, 2020, NMP2 received Control Room Annunciation, Turbine Controls EHC Storage Tank low-level alarm. Following receipt of the low-level alarm, investigation by Operations identified a significant EHC leak on Turbine Building elevation 277' in the area of the Turbine Stop and Control Valves. Based on field assessments, the Control Room staff determined that the continuing lowering trend in EHC reservoir level was unable to be mitigated and a manual reactor scram was inserted at 1205. The plant responded as designed following the manual scram with all safety systems remaining in a normal standby lineup and operators stabilized the plant in Mode 3. The EHC leak was then isolated and the station entered a forced outage.

Nine Mile Point Unit 1 was unaffected by the scram at NMP2.

Operations performed the ENS notification (#54562) required by 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A) for the reactor scram.

This event has been entered into the plant's corrective action program as IR 4323670.

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

No other systems, structures, or components contributed to this event.

D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES AND OPERATOR ACTIONS:

The dates, times, and major occurrences and operator actions for this event are as follows.

March 4, 2020

1134: Annunciator received for Low Turbine Generator Hydraulic Fluid Storage Tank Level. A lowering trend for the EHC reservoir level was observed on a local level gauge via cameras in the Control Room.

1138: A fire alarm was received for southeast Turbine Building 277. Fire Brigade Leader was dispatched and reported at 1142 a large leak and aerosol spray of EHC in this area. Fire Brigade Leader (FBL) reported no presence of fire or smoke.



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		2020	- 001	- 00

NARRATIVE

- 1157: SOP for rapid power reduction was enter and commenced reducing reactor power to 85% to lower rate of EHC leakage.
- 1205: EHC tank level as read on local gauge continued to lower rapidly, with maximum make up to the reservoir. SOP for reactor SCRAM, was entered. Reactor mode switch placed in shutdown. EOP for RPV control entered on low reactor water level which occurred due to the reactor SCRAM. EHC fluid leak identified as a ½-inch stainless steel tube upstream of manual isolation valve 2TMB-V157D, supply line to Main Stop Valve 1D.
- 1207: Turbine is tripped which slowed the EHC leak significantly. EHC reservoir level then recovered through system make up.
- 1225: Unit 2 Turbine Building is evacuated due to the EHC leak, no EAL (HA5) threshold was met.
- 1350: With plant parameters stable, reactor SCRAM and EOP for RPV Control are exited and plant shutdown is continued.
- 1358: Operations and maintenance closed the system isolation valves to stop the leak.

E. METHOD OF DISCOVERY:

This event was discovered by Reactor Operators when the Control Room Annunciation for Low Turbine Generator Hydraulic Fluid Storage Tank Level was received.

F. SAFETY SYSTEM RESPONSES:

All safety systems responded per design.

II. CAUSE OF EVENT:

The cause of the event is inadequate procedure quality that prevented the performance of appropriate preventative maintenance resulting in cyclic fatigue failure of the EHC line. The Main Turbine Electro-Hydraulic Control Accumulator Preventive Maintenance was inadequate in the identification of degraded Turbine Control Valve (TCV) accumulator performance in 2016 and 2018, resulting in missed opportunities to replace or rebuild the degraded accumulators' bladders. This led to their eventual failure which caused increased EHC system pressure pulsations and excessive vibrations, resulting in the cyclic fatigue failure of the ½" EHC supply line.

III. ANALYSIS OF THE EVENT:

This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) as any event or condition that resulted in a manual or automatic actuation of any of the systems listed in 10 CFR 50.73(a)(2)(iv)(B).



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NARRATIVE

The direct cause of the SCRAM was an un-isolable leak due to a failed ½-inch stainless steel tube on the EHC supply header. Based on Control Room annunciation, local indication and field assessments, the Control Room took appropriate action and inserted a manual scram.

Following placement of the mode switch to shutdown and subsequent scram, the EHC system remained in service. Main Steam Isolation Valves remained open and the Control Room staff was able to use bypass valves for normal pressure control. The plant was stabilized with all plant systems performing per design.

Based on the above discussion, it is concluded that the 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.

This event does affect the NRC Regulatory Oversight Process Indicator for unplanned scrams per 7000 hours of critical operation.

IV. CORRECTIVE ACTIONS:

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

The failed EHC line and Turbine Control Valve Accumulators were replaced.

B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:

Revise the Main Turbine Electro-Hydraulic Control Accumulator preventive maintenance procedure to properly detect and repair degraded accumulator performance.

V. ADDITIONAL INFORMATION:

A. FAILED COMPONENTS:

The EHC system Turbine Control Valve accumulators failed due to inadequate procedure quality that prevented the performance of appropriate preventative maintenance.

B. PREVIOUS LERs ON SIMILAR EVENTS:

None.



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NARRATIVE

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

COMPONENT

IEEE 803 FUNCTION IDENTIFIER

IEEE 805 SYSTEM IDENTIFICATION

Turbine Control Valve EHC Accumulators
Main Turbine EHC System

ACC
N/A

TG
TG