

# Constellation Energy

Nine Mile Point Nuclear Station

P.O. Box 63  
Lycoming, NY 13093

May 5, 2006

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

**ATTENTION:** Document Control Desk


**SUBJECT:** Nine Mile Point Nuclear Station  
Unit No. 2; Docket No. 50-410

Licensee Event Report 06-001, "Automatic Reactor Scram due to a Loss of Main Turbine Gland Sealing Steam"

In accordance with 10 CFR 50.73(a)(2)(iv)(A), Nine Mile Point Nuclear Station is submitting Licensee Event Report 06-001, "Automatic Reactor Scram due to a Loss of Main Turbine Gland Sealing Steam."

Should you have questions regarding the information in this submittal, please contact M. H. Miller, Licensing Director, at (315) 349-1510.

Very truly yours,

  
James A. Hutton  
Plant General Manager

JAH/RF/sac  
Attachment (1) Licensee Event Report (LER)

cc: S. J. Collins, NRC Regional Administrator, Region I  
L. M. Cline, NRC Senior Resident Inspector

JE22

Document Control Desk

May 5, 2006

Page 2

bcc: L. S. Larragoite  
C. W. Fleming, Esquire  
T. J. O'Connor  
J. A. Hutton  
M. H. Miller  
J. L. Lyon

NMP2L 2133

**COMMITMENTS IDENTIFIED IN THIS CORRESPONDENCE:**

- NONE

**Responsible Person/Organization:**

**Due Date:**

**SAR/TSB Revision Required? If yes,** No

**Type:**

**Initiation Date:**

**NCTS No.:**

***Posting Requirements for Responses -- NOV/Order*** **No**

**ATTACHMENT (1)**

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**Licensee Event Report (LER)**

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**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: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), 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, NEOF-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.

<b>1. FACILITY NAME</b> Nine Mile Point Unit 2	<b>2. DOCKET NUMBER</b> 05000410	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Automatic Reactor Scram due to a Loss of Main Turbine Gland Sealing Steam

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
03	09	2006	2006	- 001 -	00	05	05	2006	FACILITY NAME	DOCKET NUMBER

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> (Check all that apply)									
	<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)						
<b>10. POWER LEVEL</b>  86	<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**

<b>NAME</b> Mary H. Miller, Licensing Director	<b>TELEPHONE NUMBER (Include Area Code)</b> (315) 349-1510
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**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
A	TC	CON	M12000	Y	X	TC	PCV	M12000	Y

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH: _____ DAY: _____ YEAR: _____
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**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)**

On March 9, 2006, at 22:14 hours, Nine Mile Point Unit 2 reactor automatically scrambled from approximately 86 percent power. Nine Mile Point Unit 2 was coasting down in power for the upcoming refueling outage. The scram was caused by a Main Turbine Trip due to low condenser vacuum. The Turbine Generator Gland Seal and Exhaust System (TME) failed resulting in a loss of condenser vacuum. 'A' Clean Steam Reboiler, which supplies steam to the TME, isolated on high water level and the TME Emergency Main Steam Backup System (EMS) failed to supply steam as designed.

The EMS failed when the mechanical linkage for the pressure indicating controller became disconnected causing the associated pressure regulating valve to fail closed, isolating main steam from the TME. The mechanical linkage became disconnected due to either not being properly reassembled during previous maintenance, or due to the pressure transient within the EMS resulting from its automatic actuation.

Corrective actions to prevent recurrence have been developed, including procedure revisions to emphasize performance of maintenance on critical components, a design change of the EMS and enhanced training for operations and engineering.

**LICENSEE EVENT REPORT (LER)**

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)			PAGE (3)		
Nine Mile Point Unit 2	05000410	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2	OF	4
		2006	-- 001	-- 00			

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

**I. Description of Event**

On March 9, 2006, at approximately 15:00 hours, control room operators received a common high level alarm (Control Room annunciator) for the Turbine Generator Gland Seal and Exhaust System (TME) 1A/B Clean Steam Reboilers (CSR). The offline 'B' CSR level was indicating high and the online 'A' CSR level was normal. The operators lowered the offline 'B' CSR level to normal per the annunciator response procedure (ARP). However, the CSR 1A/B Water Level High alarm did not clear. Upon checking the Plant Process computer, the operators concluded the high alarm was associated with the 'A' CSR, which was supplying sealing steam to the main turbine gland seals. Initially, the in service 'A' CSR level indicator indicated normal level; however, the indicator was subsequently observed to be slowly oscillating between normal and high level over a period of several hours.

Based on indication of normal water level in the 'A' CSR, operators concluded that the CSR 1A/B Water Level High alarm was faulty. Coincident with this alarm, other abnormal self-revealing plant indications were received, such as an increase in off-gas flow. From approximately 15:00 to 22:00 hours operations and engineering continued to diagnose other plant indications thought to be associated with the performance of condenser maintenance. Initial troubleshooting and actions by operations and engineering appeared to have resolved the abnormal indications.

At 22:08 hours, 'A' CSR high-high level alarm actuated, 'A' CSR steam outlet valve closed, and operators attempted to place the redundant 'B' CSR in service, however TME steam pressure rapidly degraded and the TME Emergency Main Steam Backup System (EMS) automatically initiated on low TME steam pressure. The mechanical linkage for the pressure indicating controller became disconnected causing the associated pressure regulating valve to fail closed, isolating main steam from the TME. Without the ability to supply sealing steam to the Main Turbine's gland seals, condenser vacuum rapidly degraded. At 22:13 hours, a low vacuum alarm was received on all three condensers. At 22:14 hours, the Main Turbine tripped on low condenser vacuum, immediately followed by a reactor scram.

Following the scram operators started the condenser vacuum pumps restoring condenser vacuum, which prevented loss of the normal heat removal function.

**II. Cause of Event**

The underlying cause of the event was the mechanical linkage for the Pressure Indicating Controller of the EMS, which became disconnected. This caused the pressure regulating valve to fail closed, isolating main steam from the TME. The mechanical linkage became disconnected due to either not being properly reassembled during previous maintenance, or due to the pressure transient within the EMS resulting from its automatic actuation.

A contributing cause of the event was failure of the pressure regulating valve that supplies air to the 'A' CSR level transmitter which caused the 'A' CSR water level to be higher than indicated in the Control Room.

Another contributing cause of the event was the less than adequate organizational performance in addressing equipment issues and abnormal plant indications. Performance deficiencies were identified in the areas of adequate application of problem-solving tools and communications.

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		2006	- 001	- 00			

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**III. Analysis of Event**

This event is reportable in accordance with 10 CFR 50.73(a)(2)(iv)(A) because of the automatic reactor scram while critical.

There were no actual safety consequences associated with this event. There were no automatic initiations of safety systems, and operators effectively stabilized reactor parameters. The conditional core damage probability for the event was calculated as 7.0E-7.

Based on the above, the event did not pose a threat to the health and safety of the public or plant personnel.

**IV. Corrective Actions**

NOTE: There are no NRC regulatory commitments in this Licensee Event Report.

The following corrective actions have been developed such that, when completed, will prevent a similar event.

- Improve maintenance procedures for overhauling/calibrating pneumatic controllers by including checks to ensure linkages and other critical components are properly reassembled following maintenance.
- Correct the Emergency Steam Supply Backup System design deficiency to reduce the effects of a pressure transient.
- Conduct training to enhance problem solving skills for operations and engineering.
- Inspected and replaced air regulating valves for critical pneumatic controllers, where appropriate.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Nine Mile Point Unit 2	05000410	2006	-- 001	-- 00	4 OF 4

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

**V. Additional Information**

**A. Failed Components:**

Mechanical linkage between the pressure indicating controller and the process pointer of the Emergency Steam Supply Backup System to the Turbine Generator Gland Seal and Exhaust System (TME).

Pressure regulating valve which supplies air to the TME 'A' Clean Steam Reboiler level transmitter.

**B. Previous similar events:**

None

**C. Identification of components referred to in this Licensee Event Report:**

<u>Components</u>	<u>IEEE 805 System ID</u>	<u>IEEE 803.A Function</u>
Reactor Protection System	JC	N/A
Turbine Generator Gland Seal and Exhaust System	TC	N/A
Condenser	SG	COND
Main Turbine	TA	TRB
Pressure Indicating Controller	TC	PIC
Clean Steam Reboiler	TC	BLR
Pressure Regulating Valve	TC	PCV
Level Transmitter	TC	LT
Mechanical Linkage	TC	CON