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**CENG**<sup>SM</sup>

a joint venture of



**NINE MILE POINT  
NUCLEAR STATION**

July 23, 2012

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 2012-002, Loss of Isolation Function on RHR Shutdown  
Cooling Suction Line due to Breaker Trip

In accordance with 10 CFR 50.73(a)(2)(v)(D), please find attached Licensee Event Report 2012-002, Loss of Isolation Function on RHR Shutdown Cooling Suction Line due to Breaker Trip. This report also constitutes a 10 CFR 21 (Part 21) notification.

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

Very truly yours,

*Jeffrey W. Gerber*  
for M. Philippon

MAP/BTV

**Attachment:** Licensee Event Report 2012-002, Loss of Isolation Function on RHR Shutdown Cooling  
Suction Line due to Breaker Trip

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

*JE 20  
NRK*

**ATTACHMENT**

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**LICENSEE EVENT REPORT 2012-002**

**LOSS OF ISOLATION FUNCTION ON RHR SHUTDOWN COOLING  
SUCTION LINE DUE TO BREAKER TRIP**

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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: 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.

<b>1. FACILITY NAME</b> Nine Mile Point Unit 2	<b>2. DOCKET NUMBER</b> 05000410	<b>3. PAGE</b> 1 of 5
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**4. TITLE**  
Loss of Isolation Function on RHR Shutdown Cooling Suction Line due to Breaker Trip

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
05	25	2012	2012	002	0	07	23	2012	NA	NA
									FACILITY NAME	DOCKET NUMBER
									NA	NA

<b>9. OPERATING MODE</b> 4	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> (Check all that apply)									
<b>10. POWER LEVEL</b> 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 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 checked="" type="checkbox"/> OTHER (Part 21)							
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" 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, Licensing Director	TELEPHONE NUMBER (Include Area Code) (315) 349-5219
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**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
B	ED	BKR	Gould Inc / Frmly ITE	Y	NA	NA	NA	NA	NA

<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 Friday, May 25, 2012, at 1322 EDT, Nine Mile Point Unit 2 (NMP2) was in Mode 4, Cold Shutdown, and experienced a loss of power to 600V emergency load center 2EJS\*US1 while performing scheduled preventative maintenance of the Division I Remote Shutdown System disconnect switches. Disconnect switch SW1-2CESA20 was taken to the actuate position which isolated main control room control, bypassed the housing limit switches, and aligned the trip test switch for local breaker control of 2EJS\*US1 supply breaker 1-3B. Contacts in the trip test switch for EJS\*US1 supply breaker 1-3B were found to be closed which energized its trip coil. This resulted in a loss of motive power to Division I Residual Heat Removal (RHR) system primary containment isolation valve 2RHS\*MOV113 on the shutdown cooling suction line from the reactor vessel. At the time of the event, the Division I RHR shutdown cooling system was in-service with the Division II shutdown cooling suction line primary containment isolation valve 2RHS\*MOV112 de-energized open to prevent inadvertent or spurious closure, which would interrupt the shutdown cooling decay heat removal function.

The result of the event was that both the Division I and Division II isolation valves on the common RHR shutdown cooling suction line (2RHS\*MOV112 and 2RHS\*MOV113) were open with no motive power. Thus, neither valve was capable of automatically closing in the event of a reactor level low (level 3) signal due to a leak in the RHR shutdown cooling system. This report constitutes a 10 CFR 21 (Part 21) notification because the breaker failure that initiated the event is attributed to a breaker assembly deficiency.

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

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		2012	002	00	

**NARRATIVE**

**I. DESCRIPTION OF EVENT**

**A. PRE-EVENT PLANT CONDITIONS:**

Prior to this event, Nine Mile Point Unit 2 (NMP2) was in Mode 4, Cold Shutdown, with a temperature of 99.9 °F and pressure of 3.4 psig.

**B. EVENT:**

On May 25, 2012 at 1322 EDT, with Nine Mile Point Unit 2 (NMP2) in Mode 4 Cold Shutdown, the 600V emergency load center 2EJS\*US1 lost power coincident with taking Division I Remote Shutdown System Disconnect Switch SW1-2CESA20 to actuate. The normal supply breaker, 1-3B, was supplying 2EJS\*US1 before the switch operation and tripped when SW1-2CESA20 was actuated. 2EJS\*US1 tripped due to the trip test switch contacts being made up (latent condition) which completed the circuit to the trip coil when SW1-2CESA20 was actuated. The result of the event was that both the Division I and Division II containment isolation valves on the common Residual Heat Removal (RHR) shutdown cooling suction line (2RHS\*MOV112 and 2RHS\*MOV113) were open with no motive power. Thus, neither valve was capable of automatically closing in the event of a reactor level low (level 3) signal due to a leak in the RHR shutdown cooling system, which constitutes a loss of containment isolation function.

There was no impact on Nine Mile Point Unit 1 (NMP1) from this event.

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

At the time of the event, Division II shutdown cooling suction line primary containment isolation valve 2RHS\*MOV112 was de-energized open to prevent inadvertent or spurious closure, which would interrupt the shutdown cooling decay heat removal function.

**D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES (Note: All events occurred on May 25, 2012):**

1322 – Load Center 2EJS\*US1 lost electrical power

Declared Division I Primary Containment Isolation instrumentation inoperable for RHR shutdown cooling isolation on low reactor water level  
 Entered Technical Specification (TS) Limiting Condition for Operation 3.3.6.1  
     Condition A, which requires the channel to be placed in trip within 12 hours  
     Condition B, which requires isolation capability to be restored within 1 hour  
     Condition C, which requires the immediate entry into Condition J  
     Condition J, which requires actions to be initiated immediately to restore channel to operable

Declared 2RHS\*MOV113 inoperable  
 Entered TS 3.6.1.3  
     Condition G, which requires actions to be initiated immediately to restore valves to operable status.

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1807 – Load Center 2EJS\*US1 energized

1824 – Declared Division I Primary Containment Isolation instrumentation operable for RHR shutdown cooling isolation on low reactor water level  
Exited TS 3.3.6.1 Conditions

Declared 2RHS\*MOV113 operable  
Exited TS 3.6.1.3 Condition

**E. OTHER SYSTEMS OR SECONDARY FUNCTIONS AFFECTED:**

None

**F. METHOD OF DISCOVERY:**

On May 25, 2012, at 1322, Operations noted that Load Center 2EJS\*US1 lost electrical power.

**G. MAJOR OPERATOR ACTION:**

Entered TS 3.6.1.3 Condition G, Required Action G.2, which requires actions to be initiated immediately to restore 2RHS\*MOV113 to operable status.

**H. SAFETY SYSTEM RESPONSES:**

None. No operational conditions requiring the response of safety systems occurred as a result of this event.

**II. CAUSE OF THE EVENT:**

The direct cause of this event was the trip of 2EJS\*US1 Normal Supply Breaker due to the trip test switch contacts being made up (latent condition) which completed the circuit to the trip coil when SW1-2CESA20 was actuated. The breaker failure that initiated the event is attributed to an assembly deficiency.

The affected breaker was manufactured by Gould Inc, and was refurbished by ABB Inc. After returning from ABB, the refurbished breaker was installed in June 2011 as part of planned preventative maintenance. Post event inspection determined that the local switches for TRIP and CLOSE were out of adjustment. This condition likely existed since the date of installation. The breaker is used in a configuration that includes an Appendix R disconnect switch (Division I Remote Shutdown System Disconnect Switch SW1-2CESA20, located outside the Control Room) that enables local control of the breaker. When this switch was actuated, the circuit was completed through the inadvertently actuated TRIP switch, causing the breaker trip.

The apparent cause of this event is that NMPNS maintenance procedures, including post-maintenance checks, did not verify proper function of the Trip/Close pushbuttons of the circuit breaker.

This event was entered into the NMPNS corrective action program (Condition Report CR-2012-005170).

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**III. ANALYSIS OF THE EVENT:**

The loss of containment isolation function is reportable in accordance with 10 CFR 50.73 (a)(2)(v)(D), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident."

There were no systems inoperable and no system failures related to this event. There were no actual safety consequences from this event. Reactor vessel low water level initiates closure of various valves, intended to isolate a breach of the reactor coolant pressure boundary (RCPB) pipes, and conserve reactor coolant by closing off process lines. There were no leaks or breaches in the RHR shutdown cooling system, and therefore no reactor level low signal requiring the isolation valves to be actuated was received. Had a RCPB pipe breach occurred concurrent with this event, it could have created a condition that would challenge the ability to maintain reactor coolant inventory. Based on the above considerations, 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 affects the NRC Regulatory Oversight Process (ROP) Index for Safety System Functional Failures because the event could have prevented the fulfillment of the safety function of structures or systems needed to mitigate the consequences of an accident.

The breaker failure that initiated the loss of containment isolation is attributed to a breaker assembly deficiency, and is reportable in accordance with 10 CFR Part 21. In the event that the reactor was at power and an emergency evacuation of the control room was required, the 600V emergency load center would have lost power while transferring control to the Division I Remote Shutdown Panel. The loss of the Division I emergency loads powered by load center 2EJS\*US1 in conjunction with the control room evacuation could have impaired the ability to achieve and maintain a safe shutdown condition. The Division II normal feeder breaker of the Unit Substation (2EJS\*US3-3B) did not exhibit the same condition with the local trip pushbutton as was observed in Division I.

**IV. CORRECTIVE ACTIONS:**

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

1. Removed 2EJS\*US1-3B from Switchgear, repaired breaker trip pushbutton, and reinstalled breaker back in 2EJS\*US1

**B. ACTION TAKEN OR PLANNED TO PREVENT RECURRENCE:**

1. Verified that Division II normal feeder breaker of the Unit Substation (2EJS\*US3-3B) did not exhibit the same condition with the local trip pushbutton as was observed in Division I.
2. Revise Procurement Requirements Evaluation Forms for circuit breakers of this type to:
  - Provide specific direction to the vendor to conduct checks for the proper setup of the breaker TRIP and CLOSE pushbuttons.
  - Require the vendor to certify that the checks have been completed, and
  - Require NMPNS Procurement Test & Receipt Inspection to verify the checks have been documented as complete.

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- 3. Revise the appropriate maintenance procedure to include checks of the breaker TRIP and CLOSE switches for proper operation with the escutcheon plate installed on the breaker. This will include an Open-Close-Open (OCO) test of both switches with the escutcheon plate installed.

**V. ADDITIONAL INFORMATION:**

**A. FAILED COMPONENTS:**

2EJS\*US1-3B  
 Manufacturer: Gould Inc / Frmly ITE Imperial  
 Model: K-3000S

**B. PREVIOUS LERs ON SIMILAR EVENTS:**

There are no similar LERs.

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

COMPONENT	IEEE 803 COMPONENT IDENTIFIER	IEEE 805 SYSTEM IDENTIFICATION
Supply Breaker	BKR	ED
RHR Isolation Valve	ISV	BO

**D. SPECIAL COMMENTS:**

None