



Exelon Generation®

Dresden Generating Station
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10 CFR 50.73

SVPLTR # 16-0012

March 31, 2016

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

Dresden Nuclear Power Station, Unit 2
Renewed Facility Operating License No. DPR-19
NRC Docket No. 50-237

Subject: Licensee Event Report 237/2015-005-02, Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow During Testing

Enclosed is Licensee Event Report 237/2015-005-02, "Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow During Testing". This report describes events which are being reported 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 ... systems that are needed to mitigate the consequences of an accident".

There are no regulatory commitments contained in this submittal.

Should you have any questions concerning this letter, please contact Mr. Bruce Franzen at (815) 416-2800.

Respectfully,

Peter J Karaba
Site Vice President
Dresden Nuclear Power Station

Enclosure Licensee Event Report 237/2015-005-02

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Dresden Nuclear Power Station

IE22
NRR



LICENSEE EVENT REPORT (LER)

(See Page 2 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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.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

Dresden Nuclear Power Station, Unit 2

2. DOCKET NUMBER

05000237

3. PAGE

1 OF 33

4. TITLE

Unit 2 HPCI Motor Gear Unit Would Not Return to Full Flow During Testing

5. EVENT DATE

MONTH	DAY	YEAR
09	23	2015

6. LER NUMBER

YEAR	SEQUENTIAL NUMBER	REV NO.
2015	005	02

7. REPORT DATE

MONTH	DAY	YEAR
03	31	16

8. OTHER FACILITIES INVOLVED

FACILITY NAME	DOCKET NUMBER
	05000
FACILITY NAME	DOCKET NUMBER
	05000

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 type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
<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 checked="" 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

10. POWER LEVEL

100

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT

Bruce Franzen – Regulatory Assurance Manager

TELEPHONE NUMBER (Include Area Code)

815-416-2800

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
X	BJ	WIS	G080	Y					

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 September 23, 2015, operators were performing surveillance testing of the Unit 2 High Pressure Coolant Injection (HPCI) system. After achieving full flow, the system flow rate was lowered to 75 percent per the test procedure. System flow could not be returned to 100 percent upon subsequent adjustments. The system test was stopped and the system declared inoperable at 21:00 CDT.

The initial cause of the failure was determined to be a limit switch failure. The system was successfully tested upon component replacement.

This event is being reported under 10 CFR 50.73(a)(2)(v)(D) "Any event or condition that could have prevented the fulfillment of the safety function of ... systems that are needed to mitigate the consequences of an accident." The consequences of the failure are of very low safety significance as operator action could mitigate the failure.

The cause of the limit switch failure was determined to be high contact resistance due to deposit build-up. The initial corrective actions included replacement of the faulted switch and testing of remaining in stock switches.

NRC FORM 366A
(11-2015)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104

EXPIRES: 10/31/2018



LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Dresden Nuclear Power Station, Unit 2	05000-237	YEAR	SEQUENTIAL NUMBER	REV NO.
		2015	- 005	- 02

NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

Dresden Nuclear Power Station (DNPS), Unit 2, is a General Electric Company Boiling Water Reactor with a licensed maximum power level of 2957 megawatts thermal. The Energy Industry Identification System codes used in the text are identified as [XX].

A. Plant Conditions Prior to Event:

Unit: 02	Event Date: 09/23/15	Event Time: 2100 CDT
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 100 percent

B. Description of Event:

On September 23, 2015, operators were performing surveillance testing of the Unit 2 High Pressure Coolant Injection (HPCI) [BJ] system. After achieving full flow, the system flow rate was lowered to 75 percent per the test procedure. System flow could not be returned to 100 percent upon subsequent adjustments. The system test was stopped and the system declared inoperable at 21:00 CDT.

The initial cause of the failure was determined to be the motor gear unit (MGU) high speed stop (HSS) limit switch failure. With the switch indicating that the MGU was at the HSS, the control system would not allow the MGU to increase speed of the HPCI turbine.

The system was successfully tested upon component replacement.

C. Cause of Event:

The cause of the failure of the MGU to return to the HSS was determined to be the failure of a limit switch. Due to the failure of the limit switch, the speed control logic saw the MGU at the HSS and prevented position change. Failure analysis of the failed switch found high contact resistance, which caused the logic to see the closed contact as open. Deposits were discovered on the face of the moveable contacts, insulating the contacts from each other. Analysis found the deposits to contain high levels of zinc, silicon, carbon and oxygen. The grease used in the switch contains similar concentrations of silicon and is considered the source of the silicon. The switch was tested when installed in 2013 and performed successfully in surveillance testing until failure in September 2015.

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(11-2015)

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		2015	- 005	- 02

NARRATIVE

E. Safety Analysis:

With the exception of the MGU HSS limit switch failure, HPCI performed as designed and met all surveillance criteria. When in standby condition, the HPCI MGU is set at the HSS to achieve full flow upon initiation. The system achieved full flow at the beginning of the test. Proceduralized operator actions would have allowed the system to be returned to full flow after the failure. No loss of safety function has occurred. This event is of very low safety significance.

This event is being reported under 10 CFR 50.73(a)(2)(v)(D) "Any event or condition that could have prevented the fulfillment of the safety function of ... systems that are needed to mitigate the consequences of an accident."

F. Corrective Actions:

The limit switch was replaced. Additional cycling of the MGU to determine potential binding was performed with no abnormalities noted. Work orders have been initiated to test the remaining supply of this model switch at Dresden.

G. Previous Occurrences:

No previous failures were identified in the investigation.

G. Component Failure Data:

Manufacturer	Model	S/N	Type
General Electric	CR9440K1K1	N/A	Limit Switch