



Exelon Generation®

Dresden Nuclear Power Station

6500 North Dresden Road
Morris, IL 60450

815 942 2920 Telephone
www.exeloncorp.com

10 CFR 50.73

SVPLTR # 12-0058

December 6, 2012

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: Supplemental Licensee Event Report 237/2012-001-01, One Division of APRM
Neutron Flux-High Channels Inoperable as a Result of Power Maneuver

Enclosed is Supplemental Licensee Event Report 237/2012-001-01, One Division of APRM
Neutron Flux-High Channels Inoperable as a Result of Power Maneuver. This is a final report
which describes an event which is being reported in accordance with 10 CFR 50.73(a)(2)(v)(A),
any event or condition that could have prevented the fulfillment of the safety function of
structures or systems that are needed to shutdown the reactor and maintain it in a safe
shutdown condition.

There are no regulatory commitments contained in this submittal.

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

Respectfully,

David M. Czufin
Site Vice President
Dresden Nuclear Power Station

Enclosure

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

IEZZ
NRR

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.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 4
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4. TITLE
One Division of APRM Neutron Flux-High Channels Inoperable as a Result of Power Maneuver

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
02	19	2012	2012	- 001 -	01	12	06	2012	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
10. POWER LEVEL 073	<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 checked="" 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 Riley Ruffin – Licensing Engineer	TELEPHONE NUMBER (Include Area Code) 815-416-2815
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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

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	DAY	YEAR

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

On February 19, 2012, the oncoming control room operating crew prepared to perform daily control room surveillances. The Unit 2 licensed operator observed that average power range monitors (APRM) 4, 5, and 6 were indicating lower than actual calculated power and exceeded the allowable error tolerance of 2 percent. In this condition, the Division 2 APRM system would not have generated a Fixed Neutron Flux-High trip signal prior to exceeding the Allowable Value specified in the plant's Technical Specifications. Once identified, the APRM gains were adjusted within the allowable tolerance. During a planned down power, the night shift operating crew reduced reactor power to approximately seventy-three percent. As expected, the down power maneuvers affected the gain setting for the APRMs. However, the magnitude of the change to the gain settings was not anticipated. This resulted in all the gains on one of the two APRM Divisions experiencing an out of tolerance concurrently during the evolution. The movement of control rods, which are adjacent to Local Power Range Monitors (LPRM), have a definite affect on the power inputs being received by the APRMs. These local power inputs resulted in the Division 1 and 2 APRMs indicating conservatively and non-conservatively, respectively. This occurrence is inherent to boiling water reactors. The operation rounds were revised to include an hourly check of APRM gain settings. Additionally, a computer alarm was implemented to alarm on a sustained non-conservative indication for an APRM. The safety significance of this condition is low. The Flow Biased Neutron Flux-High trip function was conservatively set and would have generated a trip signal at approximately 104 percent rated thermal power which is well below the specified Technical Specification Allowable Value of 122 percent rated thermal power. Therefore the health and safety of the public and plant employees was not compromised as a result of this condition. This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(A), any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to shut down the reactor and maintain it in a safe shutdown condition.

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NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

Dresden Nuclear Power Station (DNPS) Units 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: 02-19-2012	Event Time: 0700 hours CST
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 73 percent

B. Description of Event:

On February 18, 2012, a planned reactor down power was commenced in order to perform a control rod sequence exchange, feedwater regulating valve maintenance, and scram time testing. The power reduction began at approximately 2200 hours and was stabilized at approximately 73 percent rated thermal power on February 19, 2012, at approximately 0200 hours. During the subsequent planned activities average power range monitors (APRMs) [JC] gain alarms were received which indicated that the gains were not within the specified tolerances. With the APRM functions inoperable due to gain settings being out of tolerance, Technical Specification 3.3.1.1 allows delay into the associated condition and required actions for up to 2 hours if the settings are non-conservative. Therefore the night shift control room operating crew did not immediately perform an adjustment of the gain settings. The operating crew completed their shift and performed turnover to the oncoming day shift.

On February 19, 2012, the oncoming day shift control room operating crew prepared to perform daily control room surveillances. The Unit 2 licensed operator performed a computer run which monitors calculated and indicated reactor power. The Unit 2 licensed operator observed that APRMs 4, 5, and 6 were indicating lower than actual calculated power. When assessed, it was determined that the three APRMs were indicating 5.7, 5.3 and 6.3 percent below actual power, respectively.

The set points for the APRM Fixed Neutron-High were set at 118 percent RTP. Therefore, the gain setting could be as much as four percent lower than the actual power and still meet the Technical Specification Allowable Value of 122 percent RTP. However in the identified condition, the Division 2 APRM system would not have generated a Fixed Neutron Flux-High trip signal prior to exceeding the Allowable Value specified in the plant's Technical Specifications. Once identified, the APRM gains were adjusted within the required tolerance at approximately 0749 hours in accordance with plant procedures.

Subsequent to the gains being adjusted, operations personnel from the day shift operating crew began to review the historical trends of the down power with regard to the APRM gain settings. It was determined that the gain tolerances were exceeded prior to the oncoming operating crew assuming the shift.

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This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(A), any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to shut down the reactor and maintain it in a safe shutdown condition. Although the channels did not meet the Technical Specifications surveillance requirement, it did not result in a condition that was prohibited by the plant's Technical Specifications.

C. Cause of Event:

During a planned down power, the night shift operating crew reduced reactor power to approximately seventy-three percent. As expected, the down power maneuvers affected the gain setting for the APRMs. However, the magnitude of the change to the gain settings was not anticipated. This resulted in all the gains on one of the two Divisions experiencing an out of tolerance concurrently during the evolution. The movement of control rods, which are adjacent (Groups 9 and 10) to Local Power Range Monitors (LPRM), have a definite affect on the power inputs being received by the APRMs. These local power inputs resulted in the Divisions 1 and 2 APRMs indicating conservatively and non-conservatively, respectively. This occurrence is inherent to boiling water reactors.

During the control rod sequence exchange, the Division 2 APRMs went non-conservative. The LPRMs that inputted into the Division 2 APRMs were located adjacent to control rods (Grp 10) that were inserted during the sequence exchange, which results in a non-conservative indication. The LPRMs that inputted to the Division 1 APRMs were adjacent to control rods (Grp 9) that were withdrawn. This resulted in the Division 1 APRMs indicating conservatively. This is the expected divisional APRM response based on control rod sequence exchanges using Grp 9 and Grp 10 rods during the existing fuel cycle.

D. Safety Analysis:

The safety significance of this condition is low. The Flow Biased Neutron Flux-High trip function was conservatively set and would have generated a trip signal at approximately 104 percent rated thermal power which is well below the specified Technical Specification Allowable Value of 122 percent rated thermal power. Due to the Flow Biased Neutron Flux scram signal being available, the minimum critical power safety limit was not adversely impacted. Although the Fixed Neutron Flux-High trip would have exceeded the Technical Specification Allowable Value, the trip would have occurred prior to the value that is assumed in the plant's fuel cycle transient analysis. Therefore the health and safety of the public and plant employees was not compromised as a result of this condition.

E. Corrective Actions:

The operations rounds were revised to include an hourly check of APRM gain settings when unit load maneuvers are anticipated or planned to occur during the shift. This would ensure that out of tolerance gain settings are corrected within the two-hour technical specification allowance.

Additionally, new computer alarms which annunciate on sustained non-conservative indications for an APRM have been implemented on both operating units.

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F. Previous Occurrences:

A review of DNPS Licensee Event Reports (LERs) for the last three years did not reveal any similar reportable conditions.

G. Component Failure Data:

Not Applicable