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Dresden Nuclear Power Station
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10 CFR 50.73

SVPLTR # 09-0015

April 7, 2009

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


Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License No. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

Subject: Licensee Event Report 237/2009-001-00, "Common Mode Failure of Reactor Building Isolation Dampers"

Enclosed is Licensee Event Report 237/2009-001-00, "Common Mode Failure of Reactor Building Isolation Dampers" for Dresden Nuclear Power Station. This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(C), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material;" 10 CFR 50.73(a)(2)(vii), common cause inoperability of independent trains or channels; and 10 CFR 50.73(a)(2)(i)(B), operation or condition prohibited by the plant's Technical Specifications. There are no regulatory commitments contained in this submittal.

Should you have any questions concerning this report, please contact Mr. Stephen Taylor, Regulatory Assurance Manager, at (815) 416-2800.

Respectfully,



For
Tim Hanley
Site Vice President
Dresden Nuclear Power Station

Enclosure

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

IE22
NRR

bcc: Officer of Nuclear Facility Safety – IEMA - DNS
Director – Licensing
Manager - Licensing – Clinton, Dresden, and Quad Cities Stations
Regulatory Assurance Manager – Quad Cities Nuclear Power Station
Midwest Document Control Desk Licensing
Plant Manager – Dresden Nuclear Power Station
Regulatory Assurance Manager – Dresden Nuclear Power Station
LER Coordinator – Dresden Nuclear Power Station
INPO Coordinator – Dresden Nuclear Power Station
Regulatory Commitment Coordinator – Dresden Nuclear Power Station
F. Polak – Plant Engineering
J. Cox – Simulator Supervisor
Dresden Regulatory Assurance, SVP File
SVP Numerical File – SVPLTR #09-0015

E-MAIL: LER Completed
File electronic in L:\8360\8301\237\180\2009\2009-001-00

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 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, 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 (DNPS), Unit 2	2. DOCKET NUMBER 05000237	3. PAGE 1 OF 4
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4. TITLE
Common Mode Failure of Reactor Building Isolation Dampers

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	DOCKET NUMBER
10	09	2008	2009	001	00	04	07	2009	DNPS Unit 3	05000249
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

9. OPERATING MODE 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (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 checked="" type="checkbox"/> 50.73(a)(2)(vii)							
10. POWER LEVEL 100	<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 checked="" type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER								
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" 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

FACILITY NAME Dresden Nuclear Power Station – Bob Rybak	TELEPHONE NUMBER (815.416.2810)
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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	Rx Bldg HVAC	Solenoid Valve	VERSA	Yes					

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 6, 2009, a review of the recent failures of Dresden Nuclear Power Station (DNPS) Unit 2 Reactor Building Ventilation (RBV) isolation dampers found that the potential existed that those failures were potentially reportable.

In 2005 through 2007, several RBV isolation dampers failed the required closure time both at DNPS and another Exelon plant. Failure analyses by Exelon and the solenoid vendor identified a potential common mode failure mechanism of solenoid valve sticking due to inadequate lubrication of the internal parts.

Subsequently, in October 2008 and January 2009, failures of the Unit 2 RBV isolation dampers occurred. The previously identified RBV damper potential common mode failure mechanism of solenoid valve sticking due to inadequate lubrication of the internal parts could have prevented the fulfillment of the safety function. All RBV isolation dampers rely on the same model solenoid valve to close and perform their safety related function to control the release of radioactive material and mitigate the consequences of an accident.

For all solenoid damper failure events, at least one in-series isolation damper closed per design. Therefore, secondary containment integrity was maintained.

Replacement of all RBV isolation damper solenoid valves with an upgraded model was completed in January 2009.

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NARRATIVE

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: 10/09/2008	
Reactor Mode: 1	Mode Name: Power Operation	Power Level: 100 percent
Reactor Coolant System Pressure: 1000 psig		

B. Description of Event:

On February 6, 2009, review of the recent failures of DNPS Unit 2 Reactor Building Ventilation (RBV) isolation dampers concluded that the potential existed that those failures were reportable. The failures are identified below:

On October 9, 2008, while securing U2 RBV to support scheduled activities, the 2-5741-A RBV Inlet Isolation Damper and 2-5742-B RBV Outlet Isolation Damper did not close within 60 seconds per design. The 2-5741-A damper closure time was greater than 5 minutes and damper 2-5742-B closure time was greater than 10 minutes after the closure signals were initiated.

On October 30, 2008, while securing U2 RBV to support scheduled activities, the 2-5742-A RBV Outlet Damper did not close within 60 seconds per design.

On January 13, 2009, the 2-5741-B RBV Inlet Isolation Damper did not close within 60 seconds per design. The damper closure time was greater than 5 minutes after the closure signal was initiated. This was the fourth failure of an RBV damper to isolate within the required stroke time in four months.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(C), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to control the release of radioactive material;" 10 CFR 50.73(a)(2)(vii), common cause inoperability of independent trains or channels; and 10 CFR 50.73(a)(2)(i)(B), Any operation or condition prohibited by the plant's Technical Specifications.

C. Cause of Event:

The cause of the event is due to the common mode failure mechanism of the RBV solenoid valves sticking due to inadequate lubrication of the internal parts.

A contributing cause of the RBV isolation damper solenoid valve failures is attributed to DNPS Plant Engineering's failure to effectively use the Corrective Action Program for resolution of the RBV damper solenoid common mode failure mechanism.

DNPS Engineering evaluated the solenoid valve historical performance and concluded the installed solenoid valves were operating reliably. Based on the historical reliability of the solenoids installed in

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the plant, the RBV System Manager did not believe it was necessary to drive resolution of the potential common mode failure mechanism on a more timely basis.

Subsequent IRs generated for the failures in 2008 and 2009 did not identify the existence of a potential common mode failure mechanism and the individuals involved in the review of the IRs failed to recognize the possibility of the common mode failure mechanism as the secondary containment function was never lost.

A second contributing cause of the RBV damper solenoid valve failures is attributed to ineffective system performance monitoring. A review of the RBV damper quarterly surveillance closure times identified all RBV dampers, which ultimately failed, exhibited high closure times during the previous quarterly surveillance(s). Although Engineering was trending the surveillance results, an IR was not generated to document the adverse trend.

D. Safety Analysis:

The RBV system is designed with Secondary Containment Isolation Valves to isolate the Reactor Building from the atmosphere via the RBV system ducts. Two isolation dampers are in series on the supply and exhaust ductwork of each unit. The inlet and outlet isolation dampers are normally open during system operation. Closure of one damper in both the inlet and outlet satisfies the secondary containment isolation requirements.

These RBV isolation dampers are required to automatically close when a Secondary Containment Isolation signal is present. The RBV isolation dampers are required to stoke from full-open to full-closed within 60 seconds of the closed signal. All RBV isolation dampers rely on the same model solenoid valve to close and perform their safety related function to control the release of radioactive material and mitigate the consequences of an accident.

In 2005 through 2007, several RBV isolation dampers failed the required closure time both at DNPS and another Exelon facility. Failure analyses by Exelon and the solenoid vendor (VERSA) in 2007 identified a potential common mode failure mechanism of solenoid valve sticking due to inadequate lubrication of the internal parts. This previously identified RBV damper common mode failure mechanism of solenoid valve sticking due to inadequate lubrication of the internal parts could have prevented the fulfillment of the safety function.

For these events, RBV dampers failed to close and perform the secondary containment isolation design function due to the solenoid valve sticking. The consequence of a single isolation damper failure is minimized by the in-series isolation damper closure to maintain secondary containment integrity. Closure of one inlet damper and one outlet damper satisfies the full isolation requirements. For all solenoid damper failure events, at least one in-series isolation damper closed per design. Therefore, secondary containment integrity was maintained.

Therefore, the consequences of this event had minimal impact on the health and safety of the public and reactor safety.

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E. Corrective Actions:

Replacement of all RBV isolation damper solenoid valves with an upgraded model was completed in January 2009.

A corrective action to be taken is to reinforce the procedural requirement to generate a new IR if a previously identified condition has deteriorated to the point the operability or reportability is affected to all Engineering personnel. In addition, a new IR shall be generated when new information is obtained for an on-going condition. The new IR shall summarize the entire condition to allow proper operability and reportability assessment.

In addition, a Training Case Study of these events shall be presented to the Engineering and Operations organizations and senior management.

F. Previous Occurrences:

A review of DNPS Licensee Event Reports (LERs) for the last three years did identified one LER associated with previous failures of components that resulted in untimely reporting. LER 237/2006-003-00, "Unit 2 Reactor Steam Dome Pressure-Low Permissive Switch Determined To Have Been Historically Inoperable," identified an issue of repeat failures of a permissive switch that was not previously evaluated. In this case, the RBV system monitoring plan did not formally monitor the RBV damper closure times.

G. Component Failure Data:

EPIX Numbers 834, 836 and 845.