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Dresden Nuclear Power Station
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Nuclear

10 CFR 50.73

SVPLTR # 08-0038

June 23, 2008

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

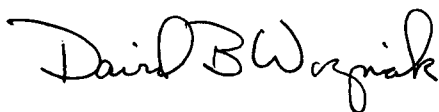
Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

Subject: Licensee Event Report 237/2008-003-00, "Control Room Emergency Ventilation Air Conditioning System Inoperable Due To Excessive Vibration"

Enclosed is Licensee Event Report 237/2008-003-00, "Units 2 and 3 Control Room Emergency Ventilation Air Conditioning System Inoperable Due To Excessive Vibration," for Dresden Nuclear Power Station, Units 2 and 3. This event is 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 structures or systems that are needed to mitigate the consequences of an accident."

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

Respectfully,



David B. Wozniak
Site Vice President
Dresden Nuclear Power Station

Enclosure

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

A102
TE22
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: 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, 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 3
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4. TITLE Control Room Emergency Ventilation Air Conditioning System Inoperable Due To Excessive Vibration
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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
04	23	2008	2008	- 003 -	00	06	23	2008	Dresden Unit 3	05000249
									FACILITY NAME N/A	DOCKET NUMBER 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 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)						
10. POWER LEVEL 100	<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 type="checkbox"/> OTHER						
	<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	
FACILITY NAME Dresden Nuclear Power Station – George Papanic Jr.	TELEPHONE NUMBER (Include Area Code) (815) 416-2815

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
NA					NA				

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	MONTH	DAY
			YEAR

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

On April 23, 2008, at approximately 2300 hours (CDT), with both Units 2 and 3 operating at approximately 100 percent power, the Control Room Emergency Ventilation Air Conditioning System was in operation to perform a post maintenance test. During the activity, the Control Room Emergency Ventilation Air Conditioning System experienced excessive vibration. Technical Specification 3.7.5, "Control Room Emergency Ventilation Air Conditioning (AC) System," was entered. The system was restored to operable status on May 1, 2008. This event is 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 structures or systems that are needed to mitigate the consequences of an accident," as the Control Room Emergency Ventilation Air Conditioning System is a single train system.

The apparent cause is attributed to the lack of lubrication due to the oil in the compressor being displaced by refrigerant. Liquid refrigerant accumulates in the compressor due to liquid floodback during operation and flooded starts. Following the completion of the actions associated with the equipment apparent cause analysis, Plant Engineering will evaluate system operation to determine the effectiveness of the actions taken. Based on this evaluation, if it is determined that system reliability has not been improved, further actions will be developed and implement, as appropriate.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISIO N NUMBE		
Dresden Nuclear Power Station Unit 2	05000237	2008	-- 003 --	00	2 OF	3

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

Dresden Nuclear Power Station (DNPS) Units 2 and 3 are General Electric Company Boiling Water Reactors 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: 04-23-2008
Reactor Mode: 1 Mode Name: Power Operation Power Level: 100 percent
Reactor Coolant System Pressure: 1000 psig

B. Description of Event:

On April 22, 2008 at 1300 hours, with both Units 2 and 3 operating at approximately 100 percent power, Operations personnel started the 'B' Control Room HVAC system [VI] for Dresden Operating Surveillance DOS 5750-04, Control Room Train B HVAC and Air Filtration Unit Surveillance. The system was required to operate for at least ten (10) hours to satisfy the surveillance requirements. Prior to the system start, the Electrical Maintenance Department (EMD) had completed Preventive Maintenance work order (PM) 1018688, which included obtaining a compressor oil sample and the compressor head valves being successfully tested for leakage. In addition to the DOS being performed to satisfy Technical Specification (TS) surveillance requirement (SR) 3.7.4.1, it was also being used to satisfy post maintenance testing requirements for the maintenance activities.

On April 23, 2008, while the system was still in operation, the compressor was observed to be vibrating excessively. Vibration analysis confirmed the compressor was vibrating above acceptable limits. Consequently, the system was secured and declared inoperable. TS Action 3.7.5.A.1 was entered due to the inoperability.

Subsequent troubleshooting revealed normal vibration levels during an uncoupled run of the compressor motor. Therefore, it was concluded that the compressor was the source of the excessive vibrations that had been observed. A work package was initiated to replace the compressor. The work was completed and the system was restored to operable status on May 1, 2008 at 0600 hours.

This event is 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 structures or systems that are needed to mitigate the consequences of an accident," as the CREVS is a single train system.

C. Cause of Event:

The failed compressor was shipped to the vendor to determine the failure mode. Upon disassembly, the following was observed: compressor piston rod broke, another rod heavily scored, dull piston skirts, heavily scored throw for rods #10, #11, and #12 and sharpened rings.

The cause of the event was attributed to premature degradation of compressor internals due to a lack of lubrication. Vendor failure analysis from inspection of the degraded compressor internals has determined the lack of lubrication is the result of liquid refrigerant *floodback* and *flooded starts*.

Floodback occurs when a portion of the refrigerant returning to the compressor is in liquid form.

Flooded Start describes a lack of lubrication when the compressor starts due to the oil being diluted

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

by refrigerant, which migrates back to the compressor during the off cycle and mixes with the oil. The liquid refrigerant acts like a solvent and washes the oil from the bearings. Based on the vendor's failure analysis and operating experience, the pistons farthest away from the oil pump to be most vulnerable. This was confirmed by the failed rods #11 and damaged rod #12, being the farthest away from the oil pump.

Although the cause could not be determined, the most likely cause is attributed to the combination of floodback and flooded starts.

D. Safety Analysis:

The Control Room Heating, Ventilation and Air Conditioning (HVAC) System is designed with two (2) HVAC Systems. One system is a non-safety related "A" Train System with an air handling unit, 2/3-5731, a return air fan, 2/3-5728, and two (2) 50 percent RCUs. The second of the two HVAC systems is the safety related "B" Train HVAC System (i.e. CREVS) comprised of an air handling unit, 2/3-9400-100, an air filtration unit, 2/3-9400-101, and a RCU, 2/3-9400-102. This system is designed in accordance with General Design Criterion 19, "Control Room Habitability," to maintain the control room habitability in the event of a Design Basis Accident. The system is designed to maintain the Control Room between 70 and 80 degrees F.

The safety significance of the event is minimal. During this event, DNPS continued to operate within the requirements of the TS. The operability of the system was restore well within the completion time established the plant's technical specifications. Additionally, the CREVS during this event maintained the capability to isolate and pressurize the control room envelope in the event of a postulated radiological or toxic gas event. Therefore, the consequences of this event had minimal impact on the health and safety of the public and reactor safety.

E. Corrective Actions:

The compressor was replaced and the system was successfully returned to service on May 1, 2008.

Engineering will verify performance of the system's thermal expansion valves and take additional actions, as appropriate.

Following the completion of the actions associated with the equipment apparent cause analysis, Plant Engineering will evaluate system operation to determine the effectiveness of the actions taken. Based on this evaluation, if it is determined that system reliability has not been improved, further actions will be developed and implement, as appropriate.

F. Previous Occurrences:

A review of DNPS Licensee Event Reports (LERs) for the last three years identified LER 2006-005-00 which describes a freon leak that resulted in a CREVS inoperability.

G. Component Failure Data:

NA