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Dresden Nuclear Power Station
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10 CFR 50.73

SVPLTR # 09-0021

May 14, 2009

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

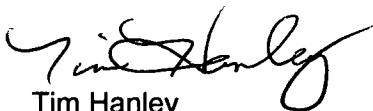
Dresden Nuclear Power Station, Unit 2
Renewed Facility Operating License No. DPR-19
NRC Docket No. 50-237

Subject: Licensee Event Report 237/2009-002-00, "Unit 2 High Pressure Coolant Injection Suction Valve Fails to Close"

Enclosed is Licensee Event Report 237/2009-002-00, "Unit 2 High Pressure Coolant Injection Suction Valve Fails to Close" for Dresden Nuclear Power Station, Unit 2. This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(C) and (D), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: (C) control the release of radioactive material and (D) mitigate the consequences of an accident." 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,



Tim Hanley
Site Vice President
Dresden Nuclear Power Station

Enclosure

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

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NRR

NRC FORM 366 (9-2007)		U.S. NUCLEAR REGULATORY COMMISSION			APPROVED BY OMB: NO. 3150-0104		EXPIRES: 08/31/2010												
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, Unit 2					2. DOCKET NUMBER 05000237			3. PAGE 1 OF 4											
4. TITLE Unit 2 High Pressure Coolant Injection Suction Valve Fails to Close																			
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 N/A		DOCKET NUMBER N/A								
03	15	2009	2009 - 002 - 00			05	14	2009	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)																
10. POWER LEVEL 100			<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 checked="" 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										
N/A					N/A														
14. SUPPLEMENTAL REPORT EXPECTED						15. EXPECTED SUBMISSION DATE		MONTH	DAY	YEAR									
<input checked="" type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input type="checkbox"/> NO								03	15	2010									
ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)																			
<p>On March 15, 2009, at approximately 2025 hours (CDT), with Unit 2 at approximately 100 percent power, Dresden Nuclear Power Station Operations personnel discovered during a maintenance activity that motor operated valve 2-2301-6, Unit 2 High Pressure Coolant Injection Suction Valve, would not close. The valve is a normally open valve and is required to close during the transfer of High Pressure Coolant Injection System pump suction from the Condensate Storage Tanks to the Torus to prevent high Torus water level. Troubleshooting and diagnostic testing identified that the valve's failure to close was attributed to valve internal binding.</p> <p>The root cause of this event will not be determined until internal valve inspections are performed in the next Unit 2 refuel outage currently scheduled for November 2009.</p>																			

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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: 3-15-2009
Reactor Mode: 1 Mode Name: Power Operation Power Level: 100 percent
Reactor Coolant System Pressure: 1000 psig

B. Description of Event:

On March 15, 2009, at approximately 2025 hours (CDT), with Unit 2 at approximately 100 percent power, DNPS Operations personnel discovered during a maintenance activity that motor operated valve (MOV) 2-2301-6, Unit 2 High Pressure Coolant Injection Suction Valve, would not close. The valve is a normally open valve and allows the flow of cooling water from the Condensate Storage Tanks (CST) to the suction of the High Pressure Coolant Injection System (HPCI) pumps. The valve is required to close during the transfer of HPCI pump suction from the CSTs to the Torus to prevent high Torus water level. High Torus water level could result in exceeding Torus structural design values during a postulated accident.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(v)(C) and (D), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: (C) control the release of radioactive material and (D) mitigate the consequences of an accident." The Torus is a structure that is credited to control the release of radioactive material and mitigate the consequences of an accident.

C. Cause of Event:

The root cause of this event will not be determined until internal valve inspections are performed in the next Unit 2 refuel outage currently scheduled for November 2009.

MOV 2-2301-6 is a 16", Crane Class 150 cast steel wedge gate valve with flanged ends. The valve is installed in a vertical section pipe with the valve stem and disc oriented horizontally. It is a normally open valve and allows the flow of cooling water from the CSTs to the suction of the HPCI pumps. Upon receipt of a HPCI initiation signal, MOV 2-2301-6 is automatically signaled to open, unless both Unit 2 MOVs 2-2301-35 and 2-2301-36 (i.e., HPCI pump suction valves from the Torus) are open. MOV 2-2301-6 remains open during HPCI initiation and will automatically close if both the 2-2301-35 and 2-2301-36 valves are open, changing the HPCI pump supply from the CSTs to the Torus. Additionally, MOV 2-2301-6 will close on high water level in the Torus to prevent exceeding Torus structural design values during a postulated accident or CST low level to prevent the CSTs from draining to a level below a pre-determined set point.

On March 15, 2009, after MOV 2-2301-6 failed to fully close when given a close signal from the Unit 2 control room, the valve was partially closed by manual action and again failed to close when given

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another signal from the control room to close. The valve was manually closed. The valve was last successfully closed electrically on January 13, 2009.

Subsequent troubleshooting and diagnostic testing were performed to determine the failure mode. The electrical circuit was inspected up to and including the valve actuator. There were no issues identified with the electrical control power circuit. During the diagnostic testing, the valve did go fully closed when operated electrically. Subsequent testing showed reduced thrust and torque during each of the next couple of strokes. The diagnostic test identified an internal valve binding force during the close stroke for about the first 40% of travel. The open stroke was observed to be as expected with no evidence of binding. The diagnostic testing found no issues with the Limitorque actuator.

During the MOV diagnostic testing evolution several actions were taken to ensure the valve would achieve the full close stroke: (1) The process of numerous strokes appears to have lowered the magnitude of the binding forces from the initial value of greater than 4800 lbs to approximately 3000 lbs. (2) The stem was cleaned and lubricated to improve the efficiency of the actuator torque to stem thrust conversion. The as-found stem Coefficient of Friction (COF) was measured at 0.2 and after the lubrication activity it was improved to 0.06 COF. (3) The actuator output torque switch setting was increased to ensure sufficient margin between the actuator output and the binding forces. The valve was stroked a total of 12 times.

The valve was declared operable and capable to perform its design function after it was verified that all diagnostic test parameters for torque and thrust were within prescribed specifications. Monthly diagnostic testing will be performed on MOV 2-2301-6 to verify its continued operability until internal valve inspections are performed in the next Unit 2 refuel outage currently scheduled for November 2009.

It is hypothesized that when the valve failed to stroke, that the binding force was greater and/or the stem lubrication slightly less efficient, resulting in the actuator output exceeding the torque switch setting and subsequent failure to stroke. The root cause of this event will not be completed until internal valve inspections are performed in the next Unit 2 refuel outage currently scheduled for November 2009.

D. Safety Analysis:

The safety significance of the event is minimal. An evaluation was performed to determine the effect of this event on the operability of the HPCI and Torus during the time that it is hypothesized that MOV 2-2301-6 would not electrically close (i.e., January 13, 2009 to March 15, 2009). The evaluation concluded that HPCI would have operated long enough to fulfill its safety function. A review of the actual Torus water levels during this time frame identified that the Torus would not have exceed its structural design values during a postulated accident. 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:

MOV 2-2301-6 was returned to operable status.

Monthly diagnostic testing will be performed on MOV 2-2301-6 to verify its continued operability until internal valve inspections are performed in the next Unit 2 refuel outage currently scheduled for November 2009.

Dresden MOV diagnostic testing for MOV Program valves with horizontal disc and stem orientation that exhibit internal binding will be revised to ensure the testing frequency does not exceed six years.

Dresden MOV stem lubrication for MOV Program valves with horizontal disc and stem orientation that exhibit internal binding will be revised to ensure the lubrication frequency does not exceed two years.

F. Previous Occurrences:

A review of DNPS Licensee Event Reports (LERs) for the last three years did not identified any LERs associated with failure of valve closure due to internal binding.

G. Component Failure Data:

16" Crane Class 150 cast steel wedge gate valve with flanged ends