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10 CFR 50.73

July 28, 2006

SVPLTR # 06-0041

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

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

Subject: Licensee Event Report 237/2006-003-00, "Unit 2 Reactor Steam Dome Pressure-Low Permissive Switch Determined To Have Been Historically Inoperable"

Enclosed is Licensee Event Report 237/2006-003-00, "Unit 2 Reactor Steam Dome Pressure-Low Permissive Switch Determined To Have Been Historically Inoperable," for Dresden Nuclear Power Station, Unit 2. This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications."

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

Respectfully,



Danny G. Bost  
Site Vice President  
Dresden Nuclear Power Station

Enclosure

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

JE22

<b>NRC FORM 366</b> (6-2004)	<b>U.S. NUCLEAR REGULATORY COMMISSION</b>	APPROVED BY OMB: NO. 3150-0104	EXPIRES: 06/30/2007
<h2 style="margin: 0;">LICENSEE EVENT REPORT (LER)</h2> <p style="margin: 0;">(See reverse for required number of digits/characters for each block)</p>		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.	

<b>1. FACILITY NAME</b> Dresden Nuclear Power Station Unit 2	<b>2. DOCKET NUMBER</b> 05000237	<b>3. PAGE</b> 1 OF 5
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**4. TITLE**  
 Unit 2 Reactor Steam Dome Pressure-Low Permissive Switch Determined To Have Been Historically Inoperable

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
05	31	2006	2006	- 003 -	00	07	28	2006	N/A	N/A
									FACILITY NAME	DOCKET NUMBER
									N/A	N/A

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> <i>(Check all that apply)</i>																															
<b>10. POWER LEVEL</b>  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 type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
		<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**

<b>FACILITY NAME</b> Dresden Nuclear Power Station – George Papanic Jr.	<b>TELEPHONE NUMBER (include Area Code)</b> (815) 416-2815
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EIPX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EIPX
NA					NA				

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i>	<input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="font-size: x-small;">MONTH</td> <td style="font-size: x-small;">DAY</td> <td style="font-size: x-small;">YEAR</td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	MONTH	DAY	YEAR			
MONTH	DAY	YEAR						

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

On May 31, 2006, at approximately 1400 hours (CDT), with Unit 2 at approximately 100 percent power, Dresden Nuclear Power Station Engineering and Operations personnel reviewed the equipment history of the Unit 2 Reactor Steam Dome Pressure-Low Permissive Switch and concluded that previous failures of the switch to pass the Technical Specification Allowable Value in 2004, 2005 and 2006 might have incorrectly assumed that the failures occurred at the time of discovery. A further evaluation was conducted which provided firm evidence that the historical failures should have been classified as a failure to meet the Technical Specifications Allowable Value for a period that exceeded Allowed Outage Times. These events are being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications."

The apparent cause of the switch failures was a knowledge-based awareness by technicians performing the calibration of the switches that using smaller step changes during calibration can result in improved accuracy of the setpoint. Corrective actions include training of technicians on the technique to be used in calibrating this switch and changes to the calibration procedure.

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

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: 05-31-2006  
 Reactor Mode: 1    Mode Name: Power Operation                          Power Level: 100 percent  
 Reactor Coolant System Pressure: 1000 psig

**B. Description of Event:**

On May 31, 2006, at approximately 1400 hours (CDT), with Unit 2 at approximately 100 percent power, DNPS Engineering and Operations personnel reviewed the equipment history of the Unit 2 Reactor Steam Dome Pressure-Low permissive switch "B", PS 2-0263-52B [69]. The permissive switch has two internal micro switches. One micro switch is connected to the Core Spray System (CS) [BM] logic circuit and the other micro switch is connected to the Low Pressure Coolant Injection System (LPCI) [BO] logic circuit. The permissive switch's as-found setting of one or both micro switches had been below the Technical Specification (TS) Allowable Value during previous TS surveillance testing. The TS Allowable Value is less than or equal to 308.5 pounds per square inch gauge (psig) and the dates the surveillance tests were found below their required value were May 3, 2004, January 18, 2005, July 20, 2005, October 18, 2005, January 20, 2006 and April 19, 2006. At the time of each event, the failure cause could not be determined and was assumed to have occurred at the time of discovery.

On May 31, 2006, Engineering and Operations personnel concluded that previous failures of the permissive switch to pass the TS Allowable Value in 2004, 2005 and 2006 might have incorrectly assumed that the failures occurred at the time of discovery based on the failure history. A further evaluation was conducted which concluded that the cause of the permissive switch historic failures was the result of a knowledge-based awareness by technicians performing the calibration of the switches that using smaller step changes during calibration can result in improved accuracy of the setpoint. The TS surveillance failures were classified as failures to meet the TS Allowable Value for a period that exceeded the TS Allowed Outage Time based on the firm evidence provided in this evaluation.

These events are being reported in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications."

**C. Cause of Event:**

The apparent cause of the switch failures was a knowledge-based awareness by technicians performing the calibration of the switches that using smaller step changes during calibration can result in improved accuracy of the setpoint.

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

Reactor Steam Dome Pressure-Low permissive switch "B" has two micro switches (i.e., SW-1 and SW-2) inside, with both set at 336 psig. The permissive switch is a mechanical design with shoulders on cams activating the two micro switches at the setpoint. With both micro switches, SW-1 and SW-2, having the same setpoint, the two micro switch mechanisms interact with each other. Therefore, adjustments to one micro switch may affect the setting of the other micro switch.

After each of the TS surveillance failures identified above, the micro switch appeared to operate as designed and was capable of being reset to the TS Allowable Value. Additionally, when permissive switches that failed the TS surveillance were tested by other facilities, the switches produced acceptable and repeatable results. As a result of this, the causes of the TS surveillance failures were indeterminate and were assumed to have occurred at time of discovery.

The evaluation conducted after May 31, 2006 focused on the possible causes of the historic failure rate. The evaluators reviewed the permissive switch manufacturer's recommendations contained in "ITT Barton Models 288A and 290A/B Differential Pressure Indicating Switches Installation and Operation Manual." The manufacturer advised in the manual that small step changes be used to calibrate and test the switch. Additionally, the manufacturer recommended smaller step changes be used if improved accuracy is needed. The use of small step changes and the rate at which pressure is changed, were left to the skill of the craft.

The DNPS evaluators reviewed the overall performance of DNPS technicians in calibrating various plant instruments and determined their performance to be satisfactory. DNPS technicians were requested to perform a calibration of the permissive switch specifically using the vendor recommended small step and rate changes. The permissive switch performed as designed and was capable of meeting TS surveillance requirements. The evaluation reviewed the training and the existing plant procedure, DIS 1500-01, "Reactor Low Pressure (350 PSIG) ECCS Permissive," used to calibrate the permissive switch. It was identified that both did not adequately address the vendor's recommendations for switch calibration to use small step and rate changes to calibrate and test the switch. DNPS's program incorrectly relied too heavily upon the skill of the craft for the calibration of these micro switches, which have unusual sensitivity to calibration technique. These deficiencies resulted in poor setpoint repeatability and the historic TS Allowable Value failures.

Additionally, the evaluation conducted after May 31, 2006, reviewed the cause of why the issue of repeat failures of the Unit 2 Reactor Steam Dome Pressure-Low permissive switch "B," was not evaluated previously. In May 2000, DNPS approved for site use procedure ER-AA-520, "Instrument Performance Trending," Revision 0. Additionally, in July 2002, DNPS approved for site use procedure ER-AA-2030, "Conduct of Plant Engineering Manual," Revision 0. The procedures implemented an instrument trending program for DNPS Engineering personnel that divided the responsibility of equipment trending between Design and Plant Engineering personnel. A review of the implementation of these procedures discovered that procedure responsibilities assigned to Plant Engineering personnel were not being implemented as required. This was the major contributor for the failure to perform an earlier evaluation of the repeat failures of the Unit 2 Reactor Steam Dome Pressure-Low permissive switch "B."

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

**D. Safety Analysis:**

The safety significance of the event is minimal. Unit 2 Reactor Steam Dome Pressure-Low permissive switch "A", PS 2-0263-52A, was operable and capable of permitting the safety function of the CS and LPCI to be performed when switch "B", PS 2-0263-52B, was assumed to be inoperable. Additionally, Unit 2 Reactor Steam Dome Pressure-Low permissive switch "B" would have functioned to permit the operation of the CS and LPCI but at a lower pressure than allowed by TS and assumed in accident analyses (i.e., approximately 40 psig). Therefore, the consequences of this event had minimal impact on the health and safety of the public and reactor safety.

**E. Corrective Actions:**

The Unit 2 Reactor Steam Dome Pressure-Low permissive switch "B" calibration was performed and confirmed acceptable on June 2, 2006, prior to its scheduled quarterly test frequency.

The frequency of performing the quarterly TS Surveillance on Unit 2 Reactor Steam Dome Pressure-Low permissive switch "B" has been reduced to 31 days to confirm the actions being taken to correct the calibration issue.

A training package will be prepared for DNPS instrument technicians to provide enhanced training in calibrating the Reactor Steam Dome Pressure-Low permissive switch. The training will be implemented during the next instrument training cycle.

The apparent cause of the failure to adequately calibrate the Reactor Steam Dome Pressure-Low permissive switch will be reviewed with instrument maintenance personnel and the method to be used during the calibration will be re-enforced with the personnel.

Procedure DIS 1500-01 will be revised to include additional guidance on calibrating the Reactor Steam Dome Pressure-Low permissive switch.

A training package will be prepared for Plant Engineering personnel on their procedural responsibilities as described in procedure ER-AA-520. Additionally, all Plant System Manager and First Line Supervisors will review ER-AA-520 and ER-AA-2030, and affirm their understanding of procedural requirements for monitoring, trending and identification of recurring instrumentation problems.

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

**F. Previous Occurrences:**

A review of DNPS Licensee Event Reports (LERs) for the last three years identified six LERs associated with training or procedure issues.

LER 237/2006-001, "Unit 2 Isolation Condenser Declared Inoperable Due To Inadequate Backfilling of Instrument Sensing Lines." The LER identified inadequate procedure guidance in backfilling instrument sensing lines.

LER 249/2004-002, "Unit 3 Automatic Scram Due To Main Turbine Low Pressure Trip And Subsequent Discovery Of Inoperability Of The Units 2 And 3 High Pressure Coolant Injection System." The LER identified inadequate procedure guidance for swapping the Main Turbine lube oil coolers.

LER 237/2004-003, "Units 2 and 3 Control Room Emergency Ventilation System Inoperable Due To Damper Failure To Close." The LER identified inadequate procedure guidance contained on an enclosed figure use to restore the system after a temporary modification.

LER 249/2004-003, "Unit 3 Scram Due To Loss Of Offsite Power And Subsequent Inoperability Of The Standby Gas Treatment System For Units 2 And 3." The LER identified an inadequate leak rate test procedure that permitted a degraded Secondary Containment boundary to be undetected.

LER 249/2003-001, "Drywell Radiation Monitor Detector Not Fully Inserted." The LER identified inadequate procedure direction for placing the detector in its penetration.

LER 237/2003-006, "Unit 2 Torus Purge Valves Open In Conjunction With The Drywell Purge Valve In Mode 2." The LER identified inadequate procedure controls for ensuring needed valve positions in Mode 2.

**G. Component Failure Data:**

NA