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Nuclear

10 CFR 50.73

September 23, 2005

SVPLTR # 05-0038

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

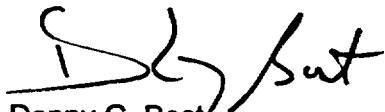
Dresden Nuclear Power Station, Unit No. 2
Renewed Facility Operating License No. DRP-19
NRC Docket No. 50-237

Subject: Licensee Event Report 237/2005-004, "Unit 2 Main Steam Target Rock
Safety/Relief Valve As-Found Setpoint Outside of Technical Specification
Allowed Value"

Enclosed is Licensee Event Report 237/2005-004, "Unit 2 Main Steam Target Rock
Safety/Relief Valve As-Found Setpoint Outside of Technical Specification Allowed Value," for
Dresden Nuclear Power Station. 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. Pedro Salas,
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

NRC FORM 366 (6-2004)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0104		EXPIRES: 06/30/2007					
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 4					
4. TITLE Unit 2 Main Steam Target Rock Safety/Relief Valve As-Found Setpoint Outside of Technical Specification Allowed Value											
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	
07	25	2005	2005	- 004 -	00	09	23	2005	N/A	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)								
10. POWER LEVEL 100			<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)								
10. POWER LEVEL 100			<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								
10. POWER LEVEL 100			<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 – 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							
X	SB	V	T020	N	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)											
<p>On July 25, 2005, with Unit 2 at approximately 100 percent power, Dresden Nuclear Power Station discovered during a vendor inspection of a Unit 2 Main Steam Target Rock Safety/Relief Valve, that the valve's second stage disc and seat had steam cutting. This valve had been removed from Unit 2 service in December 2004 and subsequently did not pass its setpoint test on February 17, 2005. The valve lifted at approximately 1091 pounds per square inch gage which is lower than specified in Technical Specification 3.4.3, "Safety and Relief Valves," Allowed Value of 1135 pounds per square inch gage, plus or minus 11.4 pounds per square inch gage. The discovery of the steam cutting of the valve's second stage disc and seat provided sufficient evidence for Dresden Nuclear Power Station to conclude that the valve's setpoint did not meet its Technical Specification requirements while it was installed in the plant during 2004.</p> <p>The apparent cause of the Target Rock Safety/Relief Valve low setpoint and steam cutting of its second stage disc and seat, was most likely caused by foreign material (e.g., rust, crud) lodged between the valve's second stage seat and disc that was introduced into the valve during in-plant testing with Reactor Coolant System steam in November 2003. A corrective action was previously implemented in November 2004 to eliminate the requirement for in-plant testing with Reactor Coolant System steam.</p>											

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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: 07-25-2005
Reactor Mode: 1 Mode Name: Power Operation Power Level: 100 percent
Reactor Coolant System Pressure: 1000 psig

B. Description of Event:

On July 25, 2005, with Unit 2 at approximately 100 percent power, Dresden Nuclear Power Station (DNPS) discovered during a vendor disassembly inspection of a Unit 2 Main Steam Target Rock Safety/Relief Valve (S/RV) [V] that the valve's second stage disc and seat had steam cutting. This valve had been removed from Unit 2 service in December 2004 and subsequently did not pass its setpoint test on February 17, 2005. The valve lifted at approximately 1091 pounds per square inch gage (psig) which is lower than specified in Technical Specification (TS) 3.4.3, "Safety and Relief Valves," Allowed Value of 1135 psig, plus or minus 11.4 psig.

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." DNPS determined that the apparent cause of the February 17, 2005 setpoint test results indicated that the low setpoint condition existed while the valve was installed in Unit 2 and that the valve did not meet its TS requirements while it was installed in the plant during 2004.

C. Cause of Event:

The apparent cause of the Target Rock S/RV low setpoint and steam cutting of its second stage disc and seat, was most likely foreign material (e.g., rust, crud) lodged between the valve's second stage seat and disc that was introduced into the valve during in-plant testing with Reactor Coolant System (RCS) steam in November 2003.

The Target Rock S/RV provides a dual function. The S/RV can actuate in the safety mode or the relief mode. In the safety mode (i.e., when actuated by system pressure), the S/RV opens when the inlet steam pressure reaches a set lift pressure. In the relief mode (i.e., power actuated mode of operation), automatic or manual switch actuation energizes a solenoid valve that admits air to the air operator diaphragm and strokes the plunger which strokes the second stage disc that is located within the main disc body. Actuation of the plunger allows pressure to be vented from the top of the main valve piston creating a differential pressure (d/p) across the main piston. This allows reactor system pressure to lift the main valve piston, which opens the main valve.

The Target Rock S/RV was initially tested and the setpoint verified at a vendor's shop with clean dry steam prior to being installed in Unit 2. The initial test records indicated that no valve seat leakage was identified. After the valve was installed in Unit 2 in November 2003, the valve was in-plant tested

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with RCS steam in accordance with TS Surveillance Requirements 3.4.3-2, 3.5.1-6 and 3.6.1.6-2. The valve's tail pipe temperature was identified as being higher than normal during subsequent plant operation. A high tail pipe temperature is an indication that one or more of the valve's three stage seats (i.e., main stage seat, second stage seat and pilot valve seat) are leaking. A leaking main stage seat has little effect on the valve's safety mode setpoint, whereas a leaking second stage seat or pilot valve seat have greater potential to affect the safety mode setpoint.

The S/RV was removed from Unit 2 in December 2004. The S/RV was vendor tested on February 17, 2005 and the as-found setpoint was determined to be 1091 psig which is lower than specified in TS 3.4.3 Allowed Value of 1135 psig, plus or minus 11.4 psig. On July 25, 2005, the valve was inspected to obtain additional information to aid in determining the cause of setpoint failure. As part of the inspection, the pilot valve and second stage seat tightness were checked with nitrogen pressure and found to have high leakage. The valve internal components were then removed and inspected. The pilot valve seat and main stage seat generally looked to be in good condition. The second stage disc and seat had steam cutting. During the inspection, no foreign material was found in the second stage disc area due to the erosion that was done to the disc. DNPS concluded that:

- The steam cutting of the second stage seat and disc was the apparent cause of the setpoint test results on February 17, 2005,
- The steam cutting of the valve's second stage disc and seat had occurred during in-plant operation,
- The steam cutting was most likely caused by foreign material (e.g., rust, crud) lodged between the valve's second stage seat and disc that was introduced into the valve during in-plant testing with RCS steam in November 2003, and
- The length of in-plant operation to cause the observed steam cutting and its effect on the valve's setpoint exceeded the 14 day Allowed Outage Time of TS 3.4.3 for this valve.

Additionally, a second S/RV that had a test result of 1119 psig in February 2005 was disassembled and inspected in July 2005 and no internal degradation was identified that could have caused the setpoint test results. It was concluded that the condition occurred at the time of discovery and was associated with setpoint drift.

DNPS had previously identified the potential detrimental effect on S/RVs from retesting the valves with RCS steam. On January 15, 2004, DNPS requested a revision to TS Surveillance Requirements 3.4.3-2, 3.5.1-6 and 3.6.1.6-2 that would eliminate the requirement to in-plant test the S/RVs with RCS steam. Thus, eliminating the potential introduction of foreign material (e.g., rust, crud) into the valve from the RCS. The NRC approved DNPS's request for the TS change on October 19, 2004. DNPS implemented the TS change in November 2004.

In addition to the above event, the Target Rock S/RV's at DNPS have experienced additional testing issues. These issues occurred when the valves were subjected to the plus or minus 3 percent testing requirements of Section XI of the American Society of Mechanical Engineers Code. Since January 2000, three S/RVs from Units 2 and 3 have had test results ranging from 1116 psig to 1131 psig that were within the plus or minus 3 percent testing requirement and were attributed to setpoint drift. Also,

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in May 2004, a Target Rock S/RV had a test result of 1094 psig that was attributed to a groove in its bellows cap, which reduced the preload on the spring force.

D. Safety Analysis:

The safety significance of the event is minimal. The S/RV can actuate in the safety mode or the relief mode. The valve's safety mode function is to automatically actuate to prevent the over pressurization of the RCS. The steam cutting of the second stage seat and disc lowered the valve's setpoint. Thus, the steam cutting would not have prevented the valve from meeting its safety mode function of preventing RCS over pressurization. Additionally, the steam cutting did not lower the valve's setpoint significantly to cause a spurious actuation of the valve at normal RCS pressure. The steam cutting did not affect the relief mode of the S/RV. Therefore, the consequences of this event had minimal impact on the health and safety of the public and reactor safety.

E. Corrective Actions:

On January 15, 2004, DNPS requested a revision to TS Surveillance Requirements 3.4.3-2, 3.5.1-6 and 3.6.1.6-2 that would eliminate the requirement to retest the S/RVs with RCS steam. The NRC approved DNPS's request for the TS change on October 19, 2004. DNPS implemented the TS change in November 2004.

DNPS replaced the Target Rock S/RV in December 2004.

F. Previous Occurrences:

A review of DNPS Licensee Event Reports (LERs) for the last three years did not identify any similar events with the Target Rock S/RVs.

G. Component Failure Data:

Target Rock S/RV Model 67F