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10 CFR 50.73

July 18, 2003

RHLTR: #03-0049

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

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

Subject: Licensee Event Report 2003-001-00, "Electromatic Relief Valve (ERV) Pressure Switches Drift Greater Than Estimated"

Enclosed is Licensee Event Report 2003-001-00 "Electromatic Relief Valve (ERV) Pressure Switches Drift Greater than Estimated," for the Dresden Nuclear Power Station Unit 2 and 3. This event is being reported in accordance with reportable 10 CFR 50.73(a)(2)(v), "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" and 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 Jeff Hansen, Regulatory Assurance Manager at (815) 416-2800.

Respectfully,



R. J. Hovey  
Site Vice President  
Dresden Nuclear Power Station

Enclosure

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

IE22

LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@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 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 5
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4. TITLE Electromatic Relief Valve (ERV) Pressure Switches Drift Greater than Estimated

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
5	19	2003	2003	- 001 -	00	07	18	2003	Dresden	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)											
	20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)			50.73(a)(2)(ix)(A)		
10. POWER LEVEL 085	20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)			50.73(a)(2)(x)		
	20.2203(a)(1)			50.36(c)(1)(i)(A)			50.73(a)(2)(iv)(A)			73.71(a)(4)		
[REDACTED]			20.2203(a)(2)(I)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)			73.71(a)(5)
			20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)			OTHER Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)			
			20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			X 50.73(a)(2)(v)(D)			
			20.2203(a)(2)(v)			X 50.73(a)(2)(i)(B)			50.73(a)(2)(vii)			
			20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)			
20.2203(a)(3)(I)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)			[REDACTED]			

12. LICENSEE CONTACT FOR THIS LER

NAME Timothy P. Heisterman	TELEPHONE NUMBER (include Area Code) (815) 416-2815
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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

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (if yes, complete EXPECTED SUBMISSION DATE)	X	NO		MONTH	DAY	YEAR

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

On May 19, 2003, instrument maintenance department (IMD) personnel performed a quarterly surveillance for the five Unit 3 relief valve pressure switches (3-0203-3A thru E). Of those five pressure switches, two were above the Technical Specification Allowable Values (AV) (3B & 3D), and of these two, one was above its Analytical Limit (AL) (3B). On May 21, 2003, the same quarterly surveillance was performed on the five Unit 2 relief valve pressure switches (2-0203-3A thru E). Two pressure switches (3B & 3C) were found above both their Technical Specification AV and AL. As a pressure switch was found out of tolerance, it was reset to within its as-left tolerance specifications.

The investigation identified two root causes associated with this event. The first root cause was ineffective implementation of previous corrective actions. The second root cause is an error in a calculation prepared as part of the Improved Technical Specification (ITS) project. The corrective action to prevent recurrence for both root causes is to implement an appropriate setpoint change. An additional corrective action is to confirm or revise the setpoint based on testing on Barksdale pressure switches to measure the effect of changes in relative humidity.

(7-2001)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the information and Records Management Branch (1-6 f33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office Of Management And Budget, Washington, DC 20503. If 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.

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

**A. Plant Conditions Prior to Event:**

Unit: 02 (03)                                      Event Date: 05-21-2003 (05-19-2003)                                      Event Time: 0418 CDT (1330 CDT)

Reactor Mode: 1 (1)                                      Mode Name: Run (Run)                                      Power Level: 085 percent (100 percent)

Reactor Coolant System Pressure: 1000 psig (1000 psig)

**B. Description of Event:**

This event is being reported in accordance with 10 CFR 50.73(a)(2)(v), "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" and in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications."

On May 19, 2003, at approximately 1330 hours, during performance of a quarterly surveillance for the five Unit 3 relief valve pressure switches (3-0203-3A thru E), two of the five pressure switches associated with the Electromatic Relief Valves (ERV) were found above the Technical Specification (TS) Allowable Values (AV) (3B & 3D), and of these two, one was above its Analytical Limit (AL) (3B). The function of the ERV instrumentation and low set function ensures that the containments loads remain within the primary containment design basis. The opening setpoints of the relief valves also ensure that the transient analyses can be met. Therefore this condition is reportable per 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications," due to more than one switch above the Technical Specification Allowable Value. Numerically, the results of the Unit 3 surveillance (converted to equivalent process pressure) were:

Instrument	As-found value	Analytical Limit	TS Allowable Value	Nominal field Setpoint
3-0203-3A	1132.1 psig	1135 psig	<=1133.5 psig	1124.0 psig
3-0203-3B	1112.6 psig	1112 psig	<=1110.5 psig	1101.0 psig
3-0203-3C	1103.7 psig	1112 psig	<=1110.5 psig	1101.0 psig
3-0203-3D	1134.5 psig	1135 psig	<=1133.5 psig	1124.0 psig
3-0203-3E	1131.9 psig	1135 psig	<=1133.5 psig	1124.0 psig

On May 21, 2003, at approximately 0418 hours, the same quarterly surveillance was performed on the five Unit 2 relief valve pressure switches (2-0203-3A thru E). Two pressure switches (3B & 3C) were found above both the allowed AV and AL. Therefore this condition is reportable per 10 CFR 50.73(a)(2)(v), "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" and in accordance with 10 CFR 50.73(a)(2)(i)(B), "Any operation or condition which was prohibited by the plant's Technical Specifications," due to more than one switch identified above the Technical Specification Analytical Limit.

(7-2001)

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Numerically, the results of the Unit 2 surveillance (converted to equivalent process pressure) were:

Instrument	As-found value	Analytical Limit	TS Allowable Value	Nominal field Setpoint
2-0203-3A	1131.4 psig	1135 psig	</=1133.5 psig	1124.0 psig
2-0203-3B	1113.6 psig	1112 psig	</=1110.5 psig	1101.0 psig
2-0203-3C	1112.9 psig	1112 psig	</=1110.5 psig	1101.0 psig
2-0203-3D	1131.5 psig	1135 psig	</=1133.5 psig	1124.0 psig
2-0203-3E	1130.3 psig	1135 psig	</=1133.5 psig	1124.0 psig

C. Cause of Event:

The root causes of the pressure switches being outside the Technical Specification AV and AL were ineffective implementation of previous corrective actions and calculation errors.

In 1998, following the Technical Specification Upgrade Project (TSUP) implementation to lower the field setpoint, increase setpoint allowance, and change calibration frequency from monthly to quarterly, setpoint changes were issued. The setpoint changes were incorporated into the calibration procedure to increase the setpoint allowance. However, Operations personnel were concerned that the new lower setpoints (i.e. 1089 psig for the low set ERVs) were too close to the setpoint for Isolation Condenser initiation (1070 psig) and did not permit the procedure to be implemented. The procedure was revised two days later to reinstate the pre-TSUP setpoints. Had these setpoints been implemented, there would have been sufficient setpoint allowance between the nominal field setpoint and the Technical Specification limit. The missing barrier was that there was no corrective action assignment to track the implementation of the setpoint changes and there was no scheduled effectiveness review. The corrective actions only tracked up to the point of "revise the Instrument Surveillance procedure to reflect the new calibration values and surveillance frequency established by the setpoint calculation." Therefore, the failure to implement the corrective actions (i.e. change the pressure switch settings) was a root cause of the event. (NRC Cause Code E) A missed opportunity was identified during the investigation of this event in that a previous root cause investigation for this same type of event in 2002 did not identify the correct root cause.

Additionally, the investigation determined that in 2000 the Improved Technical Specification (ITS) project prepared a calculation to determine the Technical Specification allowable value. The calculation contained two errors and resulted in an underestimation of the expected setpoint drift. Upon implementation of ITS, the setpoint allowance remained +/- 11 psi between the field setpoint and the analytical limit (AL). However, the analytical limit does not appear within the ITS Technical Specifications, only the allowable value (AV) appears. The AV is 1.5 psi lower than the analytical limit. Therefore, with ITS implementation a deviation of 9.5 psig resulted between the setpoint and the AV. Prior to ITS implementation, the deviation was 11 psig due to the difference considered between the setpoint and the AL. While the conversion from TSUP to ITS did not change the ERV AL or the field setpoint, there was a reduction in setpoint allowance of 1.5 psi. Had the calculation been performed correctly, a setpoint change would have been performed and more setpoint allowance would have been available. Therefore, the error in the calculation resulted in a decreased allowance between the setpoint and the Technical Specification AV, which was determined to be an additional root cause. (NRC Cause Code A)

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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**D. Safety Analysis:**

The following design functional requirements were considered for the as-found condition of the relief valve opening setpoint above the limit:

- 1) Conformance to the Design Basis ASME (American Society of Mechanical Engineers) vessel overpressurization protection
- 2) Anticipated Transient Without Scram (ATWS) analysis
- 3) Plant Operating Limit minimum critical power ratio (OLMCPR)
- 4) Loss Of Coolant Accident (LOCA) Licensing Basis

This review demonstrated that the design functions for the relief valves would not have been compromised and reactor pressure would have remained within the safety analyses while taking into account the actual as-found values. Therefore, the consequences of this event had minimal impact on the health and safety of the public and reactor safety.

**E. Corrective Actions:**

The root cause of this event determined that previous corrective actions were ineffectively implemented. The corrective action associated with this root cause is to implement programmatic changes to ensure that corrective actions are tracked and implemented. Since the time that the previous corrective actions were ineffectively implemented, Exelon has developed and implemented a comprehensive corrective action program with barriers in place to require that effectiveness reviews are performed for corrective actions to prevent recurrence and that regulatory commitments are identified within the assignment tracking process. Therefore, this corrective action is complete.

Programmatic changes have been implemented since the time frame of this calculation error to monitor and control contractor generated products. Therefore this corrective action is complete.

The appropriate station procedures were revised and the pressure switch field setpoints were changed to allow an increased tolerance of the field setpoint and the Technical Specification AV to be increased from 9.5 psig to 14.5 psig.

Testing will be performed on a spare pressure switch to validate Dresden drift data and to provide a basis for the results of instrument setpoint calculations. The testing results will be evaluated to determine if any additional calculation revisions and setpoint changes are required.

An extent of condition review was performed for the calculation associated with the ITS project with no additional errors identified.

**LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION**

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**F. Previous Occurrences:**

**LER 89-007, Unit 2** - Unsatisfactory Main Steam Relief Valve Pressure Setpoints Due to Instrument Drift and Limit Switch Failure. The cause was identified as setpoint drift for two pressure switches and a faulty micro switch for one pressure switch. Corrective actions included calibration of 2-0203-3A & 3E. The faulty limit switch (micro switch) on 2-0203-3C was corrected by replacement of the pressure switch.

**LER 90-019, Unit 2** – Electromatic Relief Valve Pressure Switch Outside Technical Specification Due to instrument Setpoint Drift. The identified cause was pressure switch 2-0203-3C had a 160-3200 psig Bourdon tube instead of the required 50-1200 psig bourdon tube, resulting in greater drift. Corrective actions included replacing the Bourdon Tube on 2-0203-3C that had an abnormally wide pressure rating and inspecting the others ERV pressure switch Bourdon tubes for wide ratings.

**LER 96-005-001, Unit 2 & 3** – Unit 2 and Unit 3 Electromatic Relief Valve Pressure Switches Found Outside of Technical Specification Tolerance Due to Setpoint Drift. The root cause of the pressure switch out of tolerances was attributed to time dependent setpoint drift. The corrective actions included increasing the calibration frequency to monthly until new frequencies specified (and supported by calculations) by the implementation of Updated Technical Specifications were put in place.

**LER 96-010, Unit 3** – Electromatic Relief Valves 3-0203-3B and E Pressure Switches Found Out of Tolerance Due to Setpoint Drift. The causes and corrective actions were included into revision 001 of LER 96-005 (see above).

**LER 96-014, Unit 3** – Electromatic Relief Valves 3-0203-3B and D Pressure Switches Found Out of Tolerance Due to Setpoint Drift. The root cause of the pressure switch out of tolerances was attributed to time dependent setpoint drift. A contributing cause was that all of the corrective actions from LER 96-005-001 had not yet been fully implemented. Corrective actions were those specified by LER 96-005-001.

**LER 2002-005, Unit 2** – Pressure Switches found above Technical Specification Allowable Values. The cause of the event was determined to be procedure instruction deficiency which reduces test pressure to zero psig after “as found” data is collected and before the pressure switch is calibrated, which promotes instrument setpoint drift. Corrective actions include revision of DIS 0250-03 and review/revision of setpoint calculations to assure proper setpoints and tolerances.

**G. Component Failure Data:**

N/A