NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Dresden Nuclear Power Station, Unit 3	05000249	1 OF 7

TITLE (4)
Electromatic Relief Valves 3-0203-3B and D Pressure Switches Found Out of Tolerance Due to Setpoint Drift

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	18	96	96	-- 014 --	00	11	15	96	None	
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	078

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(3)(i)		50.73(a)(2)(iii)		73.71(b)
	20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(iv)		73.71(c)
	20.2203(a)(2)(i)		20.2203(a)(4)		50.73(a)(2)(v)		OTHER
	20.2203(a)(2)(ii)		50.36(c)(1)		50.73(a)(2)(vii)		(Specify in Abstract below and in Text, NRC Form 366A)
	20.2203(a)(2)(iii)		50.36(c)(2)		50.73(a)(2)(viii)(A)		
	20.2203(a)(2)(iv)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(B)		
	20.2203(a)(2)(v)		50.73(a)(2)(ii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mr. P. Craig Ext. 3631	(815) 942-2920

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
X	SB	63	B070	Y						

SUPPLEMENTAL REPORT EXPECTED (14)			
X	YES (If yes, complete EXPECTED SUBMISSION DATE).		NO

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	03	30	97

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

While performing Dresden Instrument Surveillance (DIS) 0250-03, "Electromatic Relief Valve/Target Rock Valve Pressure Switches Calibration," with Unit 3 in the Shutdown mode for a forced outage, pressure switch setpoints for Electromatic Relief Valve (ERV) 3-0203-3B and D were identified with setpoints below the Technical Specification (TS) Electromatic Relief Valve (ERV) Actuation Setpoint/Tolerance of +/-1 percent of the setpoint value. The cause was attributed to setpoint drift and as yet incomplete implementation of previously identified TS revision to eliminate the lower TS limit for this setpoint.

The safety significance of this event is minimal since the "As Found" setpoint was toward the lower Technical Specification limit which is in a conservative direction. Setpoint drift toward the lower Technical Specification limit does not pose a challenge to reactor vessel pressure limits although it results in a reduced margin to normal operating pressure. This report is being submitted to report additional out of tolerance instances on Unit 3 which occurred after previous reported ERV setpoint drift problems.

PLANT AND SYSTEM IDENTIFICATION

Dresden Unit 3 is a General Electric boiling water reactor - 2527 MWt rated core thermal power.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

Automatic Depressurization System (ADS) [SB]

EVENT IDENTIFICATION:

Electromatic Relief Valves 3-0203-3B and D pressure switches found out of tolerance due to setpoint drift.

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 3 Event Date: October 18, 1996 Event Time: 1101 Hours

Reactor Mode: N Mode Name: Run Power Level: 78%

Reactor Coolant System Pressure: 1001 psig

B. DESCRIPTION OF EVENT:

This event is being reported as required by 10CFR50.73(a)(2)(i)(b) which requires the reporting of any condition prohibited by the Technical Specifications. Specifically during a periodic calibration check the pressure switch setpoints for Electromatic Relief Valves (ERV) 3-0203-3B and D were identified with setpoints below the Technical Specification 4.6.e ERV Actuation Setpoint\Tolerance of +/-1 percent of the setpoint value.

This report documents additional Electromatic Relief Valve Pressure switches out of tolerance instances found on Unit 3 while performing corrective actions as a result of LER 96-005 (Docket 05000237) and LER 96-010 (Docket 05000249).

LER 96-010 (Docket 05000249) July 1996 Information

On July 30, 1996 at 1900 with Unit 3 in the Shutdown mode for a forced outage, while performing Dresden Instrument Surveillance (DIS) 0250-03, Electromatic Relief Valve/Target Rock Valve Pressure Switches Calibration, the pressure switch setpoints for ERV 3-0203-3B and E were identified with setpoints below Technical Specification 4.6.e ERV Actuation Setpoint\Tolerance of +/-1 percent of the setpoint value.

The pressure switches for Electromatic Relief Valves 3-0203-3B, and 3-0203-3E were then calibrated satisfactorily in accordance with DIS 0250-03. DIS 0250-03 instructs the Instrument Maintenance Department personnel to isolate the pressure controller being tested and then obtain the "As Found" trip and reset setpoints. This revealed the out of tolerance trip settings. The procedure then instructs the Instrument Maintenance Department to calibrate the pressure switches and repeat the "As Found" trip test to obtain the "As Left" trip and reset setpoints. The out of tolerance switches were then returned to specification in accordance with DIS 0250-03.

The July 30, 1996 "As Found" setpoint of the ERV pressure switches follows:

Relief Valve	Tech Spec Setpoint	T.S. Required +/-1 percent Tolerance	As Found*	As Left*
ERV 3-0203-3B	1101 PSIG	1090-1112 PSIG	1073.6 PSIG	1100.6 PSIG
ERV 3-0203-3E	1124 PSIG	1113-1135 PSIG	1111.6 PSIG	1123.6 PSIG

* Calibration values less head correction.

The pressure switches were subsequently recalibrated to within Technical Specification and procedural limits.

At the time of the event, no systems or components were inoperable which could have contributed to the event. In addition, no manual or automatic engineered safety feature (ESF) [JE] actuation occurred as a result of this event.

LER 96-005 (Docket 05000237) Information

The Unit 3 ERV pressure switches were tested on September 19, 1996. The Unit 3 "3B" and "3E" switches were found to be below the low Technical Specification limit.

A calibration check was performed on the Unit 3 ERV pressure switches on September 19, 1996. The Unit 3 "3B" and "3E" switches were found to be below the lower TS limit.

The "As Found" setpoints of the out of tolerance pressure switches follows:

Relief Valve	Tech Spec Setpoint	T.S. Required +/-1 percent Tolerance	As Found*	As Left*
ERV 3-0203-3B	1101 PSIG	1090-1112 PSIG	1085.7 PSIG	1100.6 PSIG
ERV 3-0203-3E	1124 PSIG	1113-1135 PSIG	1112.7 PSIG	1124.9 PSIG

* Calibration values less head correction

The cause of this observed drift is due to random instrument drift as described previously.

Long term corrective actions will include a revision to Technical Specification 3/4.6 to reflect the fact that the affected relief function setpoints are not bounded by a lower limit. This change has already been reviewed by NRC-NRR as documented in license amendments number 140 for Unit 2 and 134 for Unit 3 (USNRC to ComED letter dated 9/21/95). Implementation of this specification change will follow the established regulatory schedule.

Calibration will continue on a monthly frequency until implementation of Updated Technical Specifications, at which time the calibration will be re-evaluated and performed on a frequency and to values reflected in calculations and procedures.

October 18, 1996 Calibration

The most recent calibration check was performed on the Unit 3 ERV pressure switches on October 18, 1996. The Unit 3 "3B" and "3D" switches were found to be below the lower TS limit.

The "As Found" (PSIG) setpoints of the out of tolerance pressure switches follows:

Relief Valve	Tech Spec Setpoint	T.S. Required +/-1 percent Tolerance	As Found*	As Left*
ERV 3-0203-3B	1101 PSIG	1090-1112 PSIG	1088.8 PSIG	1100.0 PSIG
ERV 3-0203-3D	1124 PSIG	1113-1135 PSIG	1079.8 PSIG	1124.1 PSIG

* Calibration values less head correction

At the time of the event, no systems or components were inoperable which could have contributed to the event. In addition, no manual or automatic engineered safety feature (ESF) actuation occurred as a result of this event.

C. CAUSE OF EVENT:

On April 1, 1996, a preliminary review of Unit 2 surveillance data was performed for the investigation for LER 96-005 (Docket 05000237). The review determined that the ERV pressure switches were suffering from setpoint drift problems. The switches drifted in the conservative direction of the lower Technical Specification limit. A review of Unit 3 data did not show significant levels of drift. The instrument loop calculation, which includes Unit 2 and Unit 3, was revised as a corrective action from LER 96-005 (Docket 05000237). The revised calculation determined the calibration frequency required to keep instrument drift to a minimum is monthly. With this increased calibration frequency, pressure switch performance should remain within the Technical Specification values with a 95 percent probability.

The root cause of the October 18, 1996 pressure switches ERV 3-0203-3B and D out of tolerance was attributed to setpoint drift. The magnitude of the drift resulted from an extended refueling outage that increased the time between calibration surveillances. Technical Specifications require the calibration each refueling outage. Normally, the surveillance frequency of "Refuel" checks the instrument at approximately 18 month intervals. The time between surveillances in this instance was 24 months.

The corrective actions from LER 96-005 (Docket 05000237) included adding test tap (pre-pressurization) valves to the instrument lines of the pressure switches on both units. The surveillance (DIS 0250-03) that identified the July 30,1996 out of tolerance was performed following the installation of the test tap valves on Unit 3.

Cause of pressure switches, ERV 3-0203-3B and 3D out of tolerance:

The root cause of the pressure switch out of tolerances was initially attributed to setpoint drift alone. This setpoint drift was determined to be time dependent. A statistical evaluation of instrument setpoints performed under calculation NED-I-EIC-0093 revision 2 indicates the calibration frequency of the effected instruments must be increased to monthly in order to meet the tolerances stated in Limiting Condition for Operation 3.6. Prior to this event, these instruments had been calibrated on a refueling outage frequency which increased the potential for normal instrument drift to result in an out of tolerance setpoint.

A subsequent evaluation of instrument loop errors performed in the above referenced calculation also indicates that the +/- 1 percent of setpoint error stated in Technical Specification 4.6.2 is more restrictive than the calculated loop errors for the model B2S-A12SS Barksdale pressure switch. The +/- 1 percent referenced in the Technical Specification is based on ASME code requirements for mechanical relief valves, and does not reflect instrument tolerances and drift terms. This lack of setpoint margin was identified in LER 96-05, revision 1 (Docket 05000237) as the cause of the out of tolerance setpoint values found on ERV 3-0203-3B and 3E on September 19,1996.

The cause of the most recent (October 18, 1996)out-of-tolerance instruments (ERV 3-0203-3B and 3D) is attributed to the as yet incomplete implementation of all of the corrective actions identified initially. The required TS revision previously approved in a NRC review has not yet been implemented since it is part of a comprehensive TS upgrade program. Since the instrument loop total error is essentially the same as the TS required +/- 1 percent value and because these are probabilistic errors it is highly likely one or two of these instruments, in either unit, will exceed the TS values each month when the surveillance is performed. This condition is expected to continue until the TS required value is changed to a setpoint "equal to or less than" the required relief valve actuation point.

D. SAFETY ANALYSIS:

The ERVs are electrically actuated pressure relief devices. The pressure switches consist of a bourdon tube type pressure sensing element which actuates a snap-action dual control limit switch, which in turn energizes a heavy duty relay to switch the solenoid load. The pressure switch, in conjunction with the control switch and the Automatic Depressurization System (ADS) [SB] logic contacts, supplies 125V DC electrical power to the solenoid assembly in order to operate the pilot valve. The pilot valve in turn controls the opening and closing of the relief valve.

The ERVs are the functioning components of the ADS. ADS is a backup for the High Pressure Coolant Injection (HPCI) [BJ] system for depressurization of the reactor pressure vessel during a postulated design basis loss of coolant accident involving small area breaks within primary system piping. Automatic actuation of the ADS for line breaks inside secondary containment requires coincident occurrence of reactor water low-low level and drywell high pressure signals sustained for a period of two minutes. Automatic actuation of the ADS for line breaks outside secondary containment requires only the occurrence of reactor water low-low level sustained for 8.5 minutes. If the HPCI system failed to restore reactor inventory above the low-low reactor water level setpoint within the time delay period, automatic initiation of ADS would open the ERVs and depressurize the reactor to provide for automatic injection of the Low Pressure Coolant Injection (LPCI) [BD] and Core Spray [BM] systems in order to restore reactor inventory. The ERV pressure setpoint discrepancies would have had no affect on proper operation of the ADS function.

In this case, the instrument drift in the direction of the lower Technical Specification Limit does not pose a challenge to reactor vessel pressure limits. Instead, it results in a reduced margin to normal operating pressure. The "As Found" pressure of the "B" switch was about 68 psi above a normal operating pressure of 1005 psia, and the "E" switch about 106 psi above normal operating pressure. This margin to normal operating pressure did not pose a significant safety risk. For this reason, the safety significance of this event can be considered minimal.

The Technical Specification Upgrade Project justified removal of the lower Technical Specification limit for the ERV pressure switches.

E. CORRECTIVE ACTIONS:

E.1 ERV 3-0203-3B and D were calibrated to within their Technical Specification limits in accordance with DIS 0250-03, Electromatic Relief Valve/Target Rock Valve Pressure Switches Calibration.

E.2 Continue to perform calibration surveillance for the ERV switches monthly, in accordance with DIS 0250-03, to limit instrument drift.

E.3 Implement the previously reviewed TS change to eliminate the lower limit and upon implementation, revise the Instrument Surveillance procedure DIS 0250-03, to reflect the new calibration values and surveillance frequency established by the setpoint calculation. (2491809601401)

E.4 If there are additional out of tolerance occurrences in the future, these will be reported in a supplement to this report after the TSUP Technical Specification changes are implemented. The expected date of TSUP implementation is January 15, 1997. (2491809601402)

F. PREVIOUS OCCURRENCES:

LER/Docket Number

89-007/050000237 Unsatisfactory Main Steam Relief Valve Pressure Setpoints Due To Instrument Drift and Limit Switch Failure.

Corrective actions included calibration of 2-0203-3A, E. The faulty limit switch on 2-0203-3C was corrected by replacement of the pressure switch.

90-019/050000237 Electromatic Relief Valve Pressure Switch Outside Technical Specification Due to Instrument Setpoint Drift.

Corrective actions included replacing the Bourdon Tube that had an abnormally wide pressure rating and checked others for wide pressure rating. No other abnormal bourdon tubes were found.

96-005/050000237 Electromatic Relief Valve 2-0203-3A,B,D and E Pressure Switches Found Outside of Technical Specification Tolerance Due to Setpoint Drift

Corrective actions included calibration of ERV 2-0203-3A, B, D and E to within their Technical Specification limits; complete a design change to either add test tap valves or replace the pressure switches with improved equipment; change pressure switch calibration surveillance frequency; replace pressure switch 2-0203-3A; and revise the instrument loop calculation to reflect the increased surveillance frequency.

G. COMPONENT FAILURE DATA:

Manufacturer	Nomenclature	Model Number
Barksdale Controls	PRESSURE SWITCH	B2S-H12, B2T-M12

An industry wide NPRDS data base search was performed on Barksdale Control Division Models B2T-M12, B2T-H12, B2S-M12 and B2S-H12 pressure switches. A total of 84 events were identified, of which 73 events were associated with instrument setpoint drift. A majority of the 73 events were reported from a single station. Five of these events were reported for Dresden Station, although not on the Electromatic Relief Valve pressure switches.