NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)	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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Limerick Generating Station, Unit 2	05000 353	1 OF 6

TITLE (4)
Corrosion Induced Bonding Results in Safety Relief Valve 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
08	10	95	95	-- 009 --	0	09	09	95	Limerick, Unit 1	05000 352
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	100		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
			20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
			20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)	X	OTHER
			20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in Text, NRC Form 366A)
			20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
			20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
J. L. Kantner, Manager - Experience Assessment	(610) 718-3400

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
B	SB	RV	T020	YES						

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

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

On 08/10/95, a station Engineer identified that pressure setpoint testing of the 14 Main Steam System Target Rock Corp., Model 7567F, pilot operated 2-stage safety relief valves (SRV) removed during the third Unit 2 operating cycle revealed that 12 SRVs did not lift within the Technical Specifications (TS) required limit of ±1% of the nameplate setpoint as specified in TS Section 3.4.2. Additionally, the Engineer subsequently identified that the SRV test results for the previous Unit 1 and Unit 2 operating cycles were also outside the TS ±1% tolerance. The consequences of these conditions were minimal as a previous analysis bounds these conditions. The cause for the setpoint drift was identified as corrosion induced bonding between the pilot disc seating surfaces. To resolve this issue, pilot discs containing a platinum catalyst were installed on 7 of the 14 Unit 2 SRVs during the February 1995 refueling outage. Corrective actions also include plans to install 7 similar SRVs during the next Unit 1 refueling outage in 1996, as recommended by the BWROG SRV Setpoint Drift Fix Program.

Unit Conditions Prior to the Event:

Unit 1 and Unit 2 Operational Conditions were 1 (Power Operation) at 100% power levels. There were no structures, systems, or components out of service which contributed to this event.

Description of the Event:

On August 10, 1995, a station Engineer received preliminary as-found reactor Main Steam System safety relief valve (SRV, EIIS:RV) pressure setpoint testing results from an offsite testing facility. The results were for the 14 Target Rock Corporation, Model 7567 F, pilot operated 2-stage SRVs that were installed in the Main Steam System during the third Unit 2 operating cycle. These preliminary results indicated that 12 of the 14 SRVs did not lift within the Technical Specifications (TS) required limit of ±1% of the nameplate setpoint as specified in TS Section 3.4.2.

Subsequent to the above review, the station Engineer also reviewed the previous as-found SRV pressure setpoint test results for the Unit 2 second operating cycle and the Unit 1 fifth operating cycle. These previous test results revealed that for the Unit 2 second operating cycle, 12 out of the 14 SRVs did not lift within the TS ±1% tolerance. For the Unit 1 fifth operating cycle, 13 of the 14 SRVs did not lift within the TS ±1% tolerance.

In each of the 3 operating cycles discussed above, the removed SRVs were replaced with new or refurbished/recertified SRVs prior to startup from each outage.

The as-found SRV pressure setpoint test results for the 3 subject operating cycles are as follows:

- Unit 2 - Third Operating Cycle SRV Results

Valve	SRV S/N	NamePlate Setpoint	As Found Setpoint	% Drift
A	517	1150	1166	+1.4%
B	520	1150	1161	+0.96%
C	525	1150	1150	0.0%
D	526	1140	1168	+2.5%
E	508	1140	1196	+4.9%
F	519	1150	1182	+2.8%
G	513	1150	1134	-1.4%
H	523	1130	1220	+7.9%
J	518	1130	1226	+8.4%
K	515	1140	1238	+8.6%
L	521	1130	1152	+1.9%
M	522	1140	1220	+7.0%
N	516	1130	1178	+4.2%
S	528	1140	Did Not Lift	****%

- Unit 2 - Second Operating Cycle SRV Results

Valve	SRV S/N	NamePlate Setpoint	As Found Setpoint	% Drift
A	510	1150	1208	+5.0%
B	534	1150	1209	+5.1%
C	511	1150	1182	+2.8%
D	509	1140	1176	+3.2%
E	529	1140	1166	+2.3%
F	535	1150	1191	+3.4%
G	506	1150	1227	+6.7%
H	504	1130	1204	+6.5%
J	501	1130	1270	+12.4%
K	505	1140	1288	+12.9%
L	512	1130	1141	+0.97%
M	527	1140	1138	-0.17%
N	533	1130	1145	+1.3%
S	533	1140	1224	+7.4%

- Unit 1 - Fifth Operating Cycle SRV Results

Valve	SRV S/N	NamePlate Setpoint	As Found Setpoint	% Drift
A	1213	1150	Did Not Lift	****%
B	1212	1150	1203	+4.6%
C	1211	1150	1209	+5.1%
D	1215	1140	1180	+3.5%
E	1210	1140	1197	+5.0%
F	507	1150	1166	+1.4%
G	524	1150	1229	+6.8%
H	502	1130	1190	+5.3%
J	1214	1130	1166	+3.1%
K	503	1140	1207	+5.8%
L	531	1130	1170	+3.5%
M	1209	1140	1195	+4.8%
N	532	1130	1105	-2.2%
S	530	1140	1229	-0.96%

Reactor overpressure protection for the LGS Nuclear Steam Supply System (NSSS) is provided by the nuclear pressure relief system which includes 14 pilot-operated SRVs manufactured by Target Rock Corp. and supplied by General Electric (GE). Nominal set pressures for the SRVs are as follows: four at 1130 psig, five at 1140 psig, and five at 1150 psig. The safety functions of the SRVs is to prevent steam pressure excursions from causing the reactor coolant system pressure to exceed the ASME Section III Level B Service (i.e., Upset) limit. This limit is defined at 110% of the design pressure rating or the protected vessel which is, for LGS, 1375 psig (i.e., 1.10 X 1250 psig).

On August 10, 1995, an evaluation was completed and determined that there is no recommended method of verifying functional operability of an installed SRV during plant operation. Therefore, end-of-cycle testing is performed to determine whether the SRVs are in compliance with TS section 3.4.2. This testing does not provide identification as to whether the SRVs may have drifted outside the TS ±1% tolerance during the operating cycle when the TS limit applied.

Since this event is of potential interest to the industry in view of ongoing efforts by the Boiling Water Reactor Owners' Group (BWROG) to address the issue of SRV setpoint drift by eliminating corrosion-induced bonding as a contributor, this report is being submitted voluntarily. The setpoint drift experienced in this event did not differ significantly from that measured in previous events.

Analysis of the Event:

There were no actual adverse consequences associated with this event since no overpressure transients occurred during any of the 3 subject operating cycles, which would have caused the SRVs to open based on set pressure. There was no release of radioactive material as a result of this event.

SRV setpoint drift would have had no impact on either the Automatic Depressurization System function or the manual action mode of the SRVs as based on studies performed by GE under guidance of the BWROG SRV Setpoint Drift Fix Program. In both cases, the SRV is opened by actuation of the air operator which lifts the pilot rod above the pilot disc and allows main steam pressure to lift the pilot disc and open the valve. In the case of an overpressure situation, plant procedures instruct the reactor operator to reduce reactor pressure below 1020 psig by reducing reactor power and/or recirculation flow rate. If reactor pressure increases above 1020 psig, a reactor high pressure alarm sounds. A scram is automatically initiated if reactor pressure increases above 1037 psig. In the event that reactor pressure continues to increase, the Reactor Operator has manual control of the SRVs.

As part of the BWROG Setpoint Drift Fix Program, a sensitivity study of BWR plants using the Target Rock Corp. two-stage SRVs was performed by GE as documented in Report No. NEDO-22210. This study enveloped LGS and determined that sufficient overpressure protection margin existed at all plants to tolerate an upward total average setpoint drift of 10% for 11 SRVs during the limiting pressurization transient. The most severe pressurization transient event was conservatively assumed to be the simultaneous closure of all Main Steam Isolation Valves (MSIV) with a coincident failure of the MSIV position scram signal. In this case, a reactor scram subsequently occurs on a high neutron flux signal. Since all 3 sets of SRV pressure setpoint data are bounded by the sensitivity study, peak reactor vessel pressure would have remained well below the 1375 psig design pressure rating. Therefore, there were no safety consequences, from an overpressurization standpoint, to either unit due to the results of the last 3 sets of SRV pressure setpoint data.

Cause of the Event:

The cause for the setpoint drift of the SRVs has been identified as corrosion induced bounding between the pilot disc seating surfaces. The corrosion stems from oxidation build-up due to the presence of moisture and the heated environment.

Corrective Actions:

To resolve the occurrence of SRV setpoint drift, PECO Energy Company is currently implementing the solution recommended by the BWROG Setpoint Drift Fix Program. PECO Energy Company has recently installed a special pilot disc that contains a platinum catalyst which mitigates the root cause of setpoint drift. This catalyst inhibits the corrosion formation between the pilot disc seating surfaces. Seven of the 14 SRVs installed during the February 1995 Unit 2 refueling outage, and for the fourth Unit 2 operating cycle, have these special pilot discs installed. Corrective actions also include plans to install 7 similar SRVs during the next Unit 1 refueling outage in 1996. If this special pilot disc option does not provide the desired solution to resolve the occurrence of SRV setpoint drift, then the secondary BWROG Setpoint Drift Fix Program option will be pursued to investigate having the SRVs actuate using an automatic pressure switch.

Previous Similar Occurrences:

LERs 1-87-034, 1-91-015, 1-92-017, and 2-92-010 report Main Steam System SRV setpoint drift.

The cause of each of these events is the same and the issue of resolving the SRV setpoint drift problem is being addressed by the BWROG SRV Setpoint Drift Fix Program.