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 FACIL: 50-281 Surry Power Station, Unit 2, Virginia Electric & Power 05000281
 AUTH. NAME AUTHOR AFFILIATION
 KANSLER, M.R. Virginia Power (Virginia Electric & Power Co.)
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-013-00: on 891017, pressurizer safety valve setpoints outside of Tech Spec allowable limits.

w/8 ltr.

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VIRGINIA ELECTRIC AND POWER COMPANY
Surry Power Station
P.O. Box 315
Surry, Virginia 23883

November 14, 1989

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Serial No.: 89-050
Docket No.: 50-281
License No.: DPR-37

Gentlemen:

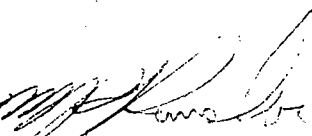
Pursuant to Surry Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report for Unit 2.

REPORT NUMBER

89-013-00

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be reviewed by Safety Evaluation and Control.

Very truly yours,



M. R. Kansler
Station Manager

Enclosure

cc: Regional Administrator
Suite 2900
101 Marietta Street, NW
Atlanta, Georgia 30323

*TEP
11*

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Surry Power Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 8 1	PAGE (3) 1 OF 0 5
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TITLE (4) Pressurizer Safety Valve Setpoints Outside of Technical Specification Allowable Limits Due to Establishing Setpoints Without Loop Seal

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 NAMES		DOCKET NUMBER(S)																																																				
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9) N</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="5">POWER LEVEL (10) 0 1 0 0</td> <td>20.402(b)</td><td></td><td>20.406(e)</td><td></td><td>50.73(a)(2)(iv)</td><td></td><td>73.71(b)</td> </tr> <tr> <td>20.406(a)(1)(i)</td><td></td><td>50.36(c)(1)</td><td></td><td>50.73(a)(2)(v)</td><td></td><td>73.71(c)</td> </tr> <tr> <td>20.406(a)(1)(ii)</td><td></td><td>50.36(c)(2)</td><td></td><td>50.73(a)(2)(vii)</td><td></td><td rowspan="3">OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td>20.406(a)(1)(iii)</td><td></td><td>50.73(a)(2)(ii)</td><td></td><td>50.73(a)(2)(viii)(A)</td><td></td> </tr> <tr> <td>20.406(a)(1)(iv)</td><td></td><td>50.73(a)(2)(iii)</td><td>X</td><td>50.73(a)(2)(viii)(B)</td><td></td> </tr> <tr> <td>20.406(a)(1)(v)</td><td></td><td>50.73(a)(2)(iii)</td><td></td><td>50.73(a)(2)(x)</td><td></td><td></td> </tr> </table>												OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)										POWER LEVEL (10) 0 1 0 0	20.402(b)		20.406(e)		50.73(a)(2)(iv)		73.71(b)	20.406(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)	20.406(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)	20.406(a)(1)(iii)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(A)		20.406(a)(1)(iv)		50.73(a)(2)(iii)	X	50.73(a)(2)(viii)(B)		20.406(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		
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LICENSEE CONTACT FOR THIS LER (12)

NAME M. R. Kansler, Station Manager	TELEPHONE NUMBER AREA CODE: 8 0 4 3 5 7 - 3 1 8 4
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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

SUPPLEMENTAL REPORT EXPECTED (14)

YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	EXPECTED SUBMISSION DATE (15)	MONTH: DAY: YEAR:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (18)

On October 12, 1989, following a shutdown of Unit 2 due to a leaking safety valve, notification was received from Westinghouse that a potential problem exists with the method used to test and set the pressurizer safety valves. As found tests of the safety valve lift setpoints were performed by Westinghouse on October 17, 1989. Results of these tests, using a water loop seal, determined that required lift setpoints of 2485 + 1 percent had been exceeded on all three valves. This condition is contrary to Technical Specification 3.1.A.3(4). It was determined that the pressurizer code safety valve setpoints were not within the allowable tolerance because the valve setpoints had been established with steam rather than the lower temperature water loop seal condition. This method of testing and establishing lift setpoints had previously been considered industry practice. All three safety valve lift settings were tested with water loop seal configurations and adjusted to the proper setpoint and tolerance. The methodology for setting and testing safety valve lift setpoints will be reviewed in coordination with ongoing industry efforts.

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Surry Power Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 8 1	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 9	0 1 3	0 0	0 2	OF 0 5

TEXT (If more space is required, use additional NRC Form 366A's) (17)

1.0 Description of the Event

On October 12, 1989, Unit 2 was shut down to repair a leaking pressurizer safety valve (EIIS-RV). Prior to the shutdown, operators observed parameters indicating that the "B" pressurizer safety valve was leaking into the Pressurizer Relief Tank (PRT) (EIIS-TK). In addition, Reactor Coolant System (RCS) (EIIS-AB) leak rates were observed to increase, although they remained within the allowable specifications. Concurrent with this event, the Westinghouse site representative notified Virginia Power of a generic issue regarding safety valve testing methodology and allowable setpoint tolerances. Westinghouse had identified that the lift setpoint for the safety valves may change by more than one percent from the original setpoint when they are subjected to temperature conditions different from those used to establish the setpoint. The Surry pressurizer code safeties had previously been tested with steam on their seats, but are installed with a water loop seal at a temperature lower than test conditions. Therefore, it was decided to test all three valves to establish the lift setpoint under the loop seal conditions.

As found tests performed on October 17, 1989, using a water loop seal, determined that the required safety valve lift setpoint of 2485 psig + 1 percent had been exceeded. The following is a list of the "as found" setpoints and percentage above 2485 psig.

2-RC-SV-2551A	2566 psig +3.3 percent
	2559 psig +3.0 percent
2-RC-SV-2551B	2564 psig +3.2 percent
	2564 psig +3.2 percent
2-RC-SV-2551C	2580 psig +3.8 percent
	2581 psig +3.9 percent

This condition is contrary to the requirements of Technical Specification 3.1.A.3(4).

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 9	- 0 1 3	- 8 9	0 3	OF	0 5

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2.0 Safety Consequences and Implications

The pressurizer safety valves are provided to prevent an overpressure condition in the Reactor Coolant System (RCS). The accident scenarios that cause significant pressure transients (i.e. Locked Reactor Coolant Pump Rotor, Loss of Feedwater, Feedwater Line Break, Rod Ejection, and Loss of Load) were evaluated. This evaluation showed that peak RCS pressure remains below the 110 percent design overpressure limit, for safety valve lift setpoints as high as 5.4 percent above the nominal setpoint of 2485 psig.

Testing revealed that the setpoint change resulting from a water loop seal was within 5.4 percent of the nominal setpoint for all three valves tested. Therefore, the health and safety of the public were not affected.

3.0 Cause

It was determined that the pressurizer code safety valves setpoints were not within the allowable tolerance because the valve setpoints had been established with steam rather than the lower temperature water loop seal condition. This method of testing and establishing lift setpoints had previously been considered industry practice.

4.0 Immediate Corrective Action(s)

None required.

5.0 Additional Corrective Action(s)

All three safety valves lift settings were tested with a water loop seal configuration and adjusted to the proper setpoint and tolerance under the same configuration.

Since the Unit 1 safety valves' setpoints were established under the same test conditions as the Unit 2 safety valves, the potential exists for Unit 1 safety valves to exceed the + 1 percent Technical

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FACILITY NAME (1) Surry Power Station, Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 2 8 1 8 9 - 0 1 3 - 0 0 0 4 OF 0 5	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

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Specifications tolerance. Discretionary enforcement was requested and received from the Nuclear Regulatory Commission (NRC) to allow time to resolve the issue and continue Unit 1 operation.

As an interim measure, the NRC was provided with a Justification for Continued Operation of Unit 1, which included compensatory measures to be taken to avoid conditions which could be impacted by relaxed safety valve lift setpoint tolerances. These compensatory actions require that the reactor trip by turbine trip circuitry must remain operable and that one pressurizer pressure operated relief valve (PORV) must remain operable.

6.0 Action(s) Taken to Prevent Recurrence

The methodology for setting and testing safety valve lift setpoints will be reviewed in coordination with ongoing industry efforts.

7.0 Similar Events

Subsequent to this event, one of the primary relief valves lifted prematurely during primary plant pressure testing. The premature lifting of the relief valve is being addressed in a separate LER.

U2 LER 86-015: Unit 2 pressurizer safety valves were determined to be outside the allowable Technical Specification limits. It was determined that this was due to minor valve damage/wear found during the surveillance test and the failure to compensate for operating temperature during the previous surveillance tests. Following this event, testing conditions were modified to more accurately simulate actual operating conditions. However, as described above, this modification has since been determined to yield inaccurate results.

U1 LER 88-016: Unit 1 pressurizer safety valves were determined to be outside the allowable T.S. limits. Results of an engineering evaluation performed to determine the cause of this event was inconclusive. A Technical Specification change has been submitted to

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		— 0	1 3	— 0 0	0 5	OF 0 5

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the Nuclear Regulatory Commission to revise the allowable "as found" pressurizer safety lift setpoints to + 3 percent. This was requested due to the inherent difficulty throughout the nuclear industry in maintaining the lift setpoints within + 1 percent.

8.0 Manufacturer/Model Number(s)

Crosby/HB-86-BP-E.