

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Surry Power Station, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 2 8 0	PAGE (3) 1 OF 0 3
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TITLE (4) Failure of Bolting Material in Valve Flanges

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)
0 1	0 7	8 6	8 6	0 0 7	0 0	0 2	1 0	8 6		0 5 0 0 0

OPERATING MODE (9) N POWER LEVEL (10) 0 1 9 7	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)										
	20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)	
	20.405(a)(1)(i)			50.36(e)(1)			50.73(a)(2)(v)			73.71(e)	
	20.405(a)(1)(ii)			50.36(e)(2)			50.73(a)(2)(vi)			X OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
	20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)			"Voluntary"	
	20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(vii)(B)				
20.405(a)(1)(v)			50.73(a)(2)(iii)			50.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)									
NAME R. F. Saunders, Station Manager								TELEPHONE NUMBER AREA CODE 8 0 4 3 1 5 7 1 - 3 1 8 1 4	

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input type="checkbox"/> NO							0 4	0 1	8 6

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

ABSTRACT

With Unit 1 at 97% on January 7, 1986, 2 bolting studs in MOV-S1-1890B were observed to have failed. The failure mechanism was determined to be intergranular stress corrosion of 410 stainless steel stud material. An inspection of Unit 1 was conducted and stud material of valves containing studs, 3/4 inch diameter and greater, with the same material designation or those stainless steel studs for which no material designation could be determined were replaced. An inspection and replacement program for Unit 2 is in progress. This voluntary report is submitted for information. A detailed report will be forwarded following the completion of the inspection program for Unit 2. The bolting material was installed as part of a valve bolting material design change issued in 1979.

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LICENSEE EVENT REPORT (LET) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/98

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Surry Power Station, Unit 1	0500028086	—	007	—	00	02	OF 03

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

Failure of Bolting Material in Valve Flanges1. Description of the Event

With Unit No. 1 at 97% power, on January 7, 1986 during a routine inspection, 2 stainless steel studs in a valve flange for the low head safety injection system were observed to have failed. A subsequent review of records and a walkdown revealed studs of the same material designation in other valves.

2. Safety Consequences and Implications

A detailed engineering analysis, including chemical and metallurgical tests, was performed on the failed material. The subsequent engineering evaluation indicated that the failure mechanism would not cause valve flange failure or excessive leakage as the adjacent studs would satisfactorily absorb the increased stress caused by the stud failures.

3. Cause

A thorough metallurgical and chemical analysis of the failed studs and foreign material found on the studs indicated that the failure mechanism was stress corrosion cracking followed by rapid unstable crack growth after the critical flaw size was achieved. The bolting material was installed as part of a valve bolting material design change issued in 1979.

4. Immediate Corrective Action

An inspection of records to identify the valves containing the questionable material and a visual walkdown of safety systems in Unit 1 was conducted. The studs in MOV-ST-1890B were replaced with ASTM A193 B7 type bolting material and an evaluation was initiated.

5. Additional Corrective Action

During the next maintenance outage, which commenced on January 24, 1986, an inspection of Unit 1 valves was conducted. Studs of 3/4 inch diameter and greater of the material in question were replaced in critical plant systems. An inspection of Unit 2 valves outside of containment is being conducted and if studs of the suspected material are found, they will be replaced. A containment inspection will be conducted in Unit 2 at the next outage, currently scheduled to commence on February 14, 1986. In addition, a testing program has been initiated to verify that suspected stainless steel stud material of less than 3/4 inch diameter is not susceptible to the same failure mechanism. A detailed report will be prepared and forwarded following the Unit 2 outage.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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TEXT (If more space is required, use additional NRC Form 385A's) (17)

6. Action Taken to Prevent Recurrence

The material in question is being replaced with ASTM A193 B7 type bolting material. The identified, required Unit 1 stud replacement for critical plant systems has been completed. Required Unit 2 stud replacement will be complete prior to completion of the next scheduled outage, approximately March 10, 1986.

7. Generic Implications

Under evaluation.

Vepco

VIRGINIA ELECTRIC AND POWER COMPANY

Surry Power Station
P. O. Box 315
Surry, Virginia 23883

February 10, 1986

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

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License No: DPR-32

Gentlemen:

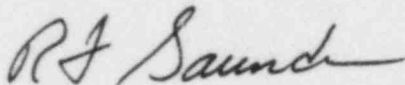
Pursuant to Surry Power Station Technical Specifications, Virginia Electric and Power Company hereby submits the following Licensee Event Report for Surry Unit 1.

REPORT NUMBER

86-007-00

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,



R. F. Saunders
Station Manager

Enclosure

cc: Dr. J. Nelson Grace
Regional Administrator
Suite 2900
101 Marietta Street, NW
Atlanta, Georgia 30323

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