NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Surry Power Station, Unit 2	0 5 0 0 0 2 8 1	1 OF 0 4

TITLE (4)

"A" and "B" Inside Recirculation Spray Pump Found With Internal Damages

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)
1 0	0 7	8 8	8 8	0 2 4	0 0	1 1	0 4	8 8		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
N		20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 0 0	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)	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)	
		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
D. L. Benson, Station Manager	AREA CODE 8 0 4 3 5 7 - 3 1 8 4

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	B E	P	B 2 6 0	Y					
X	B E	P	B 2 6 0	Y					

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 fifteen single-space typewritten lines) (16)

On October 5 and 6, 1988 with Unit 2 at Cold Shutdown, damage to internal components and other discrepancies were noted during the disassembly of the "A" and "B" Inside Recirculation Spray pumps. In addition, pieces of pump components and other small foreign objects were found in the "B" pump's sump. A preliminary engineering evaluation determined that the pumps were capable of starting and providing flow and pressure, but the long term operability of the pumps could not be established.

The exact cause of the pump component failures has not been determined. The foreign material was removed from the sump and the repair of the pumps was initiated. An investigation is in progress to determine the exact cause of the pump component failures. A Technical Specification (T.S.) change has been initiated to change the present pump testing frequency. In addition, a full flow test will be performed each refueling and an inspection and overhaul will be performed at a five year interval.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

1.0 Description of the Event

On October 5, 1988 with Unit 2 at Cold Shutdown (CSD), during the disassembly of the "B" Inside Recirculation Spray (IRS) pump (2-RS-P-1B) {EIIS-BE-P}, it was noted that a pump guide bearing was damaged and a shaft sleeve bearing was missing. In addition, the pump impeller vane tips were damaged and other minor discrepancies were noted.

A subsequent inspection of the pump suction well in the containment sump revealed pieces of shattered shaft sleeve and other small foreign metal objects.

On October 6, during the disassembly of the "A" IRS pump (2-RS-P-1A), it was noted that the first stage casing lower wear ring had sheared its retaining pins and had rotated two inches in the casing.

A preliminary engineering evaluation determined that the pumps were capable of starting and providing flow and pressure. However, the long term operability of the pumps could not be established and a four hour non emergency report was made to the Nuclear Regulatory Commission on October 7, per the requirements of 10CFR50.72. This report is being submitted per the requirements of 10CFR50.73.

2.0 Safety Consequences and Implications

The Recirculation Spray (RS) system consists of four independent trains, each containing a pump, a heat exchanger, and a discharge spray ring. The RS system is used in conjunction with the containment spray system following a design basis accident. It provides the necessary cooling and depressurization of the containment and is capable of maintaining the containment pressure below atmospheric for an extended period. Each of the four trains of the RS system are 50% capacity.

An evaluation of the pumps' operability was performed by the pump manufacturer. It was concluded that even with the degraded condition of the pumps, they still were capable of producing a pressure and flow. However, the effects on long term operability of the pumps could not be determined.

*U.S. GPO: 1988-520-589 00070

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

2.0 (Continued)

The effect of losing both unit 2 IRS pumps was estimated using an analysis performed in June, 1985 for Surry unit 2. The study concluded that for a worst case accident scenario (one train of containment spray {EIIS-BE}, one train Outside Recirculation Spray (ORS), and no IRS pumps), the 10CFR100 offsite dose limits would not be exceeded; however, the main control room GDC-19 thyroid dose limit could be exceeded.

3.0 Cause

The exact cause of the pump component failures has not been determined.

The damage to the impellers has been attributed to pump parts and other foreign objects passing through the pump during operation.

4.0 Immediate Corrective Action(s)

Since the unit was in cold shutdown condition at the time of the event, no immediate corrective actions were required.

5.0 Additional Corrective Action(s)

The foreign material was removed from the sump and the repair of the pumps was initiated.

6.0 Action(s) Taken to Prevent Recurrence

An investigation is in progress to determine the exact cause of the pump component failures. A Technical Specification (T.S.) change has been initiated to change the present monthly surveillance test (dry pump run) to a quarterly interval. In addition, a full flow test will be performed each refueling and an inspection and overhaul will be performed at a five year interval.

★U.S GPO:1988-0-824-538/455

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7.0 Similar Events

As reported in Unit 2 LER 88-017, foreign debris was discovered in the Unit 2 IRS pump sump and all material was removed at that time. The pumps have been operated several times since, and it is believed that the debris discovered during the October 5 and 6 inspection had been trapped in the pump suction bowls and consequently, had fallen out of the pump bowls following their operation.

8.0 Manufacturer/Model Numbers

Bingham-Willamette/10 X 18B VCR 2 stage.

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

November 4, 1988

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

Serial No.: 88-059
Docket No.: 50-281
Licensee No.: DPR-37

Gentlemen:

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

REPORT NUMBER

88-024-00

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,

for

David L. Benson
Station Manager

Enclosure

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

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