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TING	SOURCE L 6 0 5 0 0 0 2 8 0 0 1 2 2 2 8 1 6 0 1 2 0 18 2 9 SOURCE 60 61 DOCKET NUMBER 55 66 EVENT DATE 74 75 REPORT DATE 80
0 2	EVENT DESCRIPTION AND PROBABLE CONSEQUENCES 10 With the unit at 100%, it was discovered that both containment vacuum pumps were
03	inoperable. This is contrary to T.S.3.15.B and is reportable per T.S.6.6.2.b.(4)
04	At no time during this event did the containment vessel exceed the limits allowed
0 5	by the operating envelope governed by containment pressure, containment temperature,
0 6	and service water temperature as set forth ip T.S.3.8; therefore, the health and
0 7	safety of the public were not affected.
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	SYSTEM CAUSE CAUSE CAUSE COMPONENT CODE SUBCODE VALVE SUBCODE
	$\begin{array}{c c c c c c c c c c c c c c c c c c c $
10	Pump inoperability was the result of the sliding vanes held in the pump rotor be-
11	coming bound in their respective guide slots. Pump design requires these vanes
1 2	move freely in order for the intake-exhaust cycle to be completed. One of the
1 3	inoperable pumps was immediately replaced with a readily available spare; repairs
14	commenced on the other pump.
7 8	ACILITY STATUS SPOWER OTHER STATUS 30 METHOD OF DISCOVERY DISCOVERY DESCRIPTION 32   E 28 1 0 0 29 N/A A 31 Operator Observation
	CTIVITY CONTENT ELEASED OF RELEASE AMOUNT OF ACTIVITY 35 LOCATION OF RELEASE 36 N/A
17	9     PERSONNEL EXPOSURES     80       NUMBER     TYPE     DESCRIPTION (39)       0     0     (37)     Z       38     N/A
- e	PERSONNEL INJURIES 13 NUMBER DESCRIPTION (41)
* B	S II 12 LOSS OF OR DAMAGE TO FACILITY (43) TYPE DESCRIPTION Z (42) N/A
	PUBLICITY ISSUED DESCRIPTION (45) N (44) N/A ILIIIIIIIII
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ATTACHMENT 1 SURRY POWER STATION, UNIT 1 DOCKET NO: 50-280 REPORT NO: 81-081/03L-0 EVENT DATE: 12-22-81

1 1

# TITLE OF EVENT: INOPERABILITY OF CONTAINMENT VACUUM PUMPS, 1-CV-P-1A & B

## 1. DESCRIPTION OF EVENT:

On December 22,1981 with the unit at 100% power, both containment vacuum pumps, 1-CV-P-1A and B, developed zero flow when they were operated by the control room operator. Both pumps were declared inoperable. This is contrary to Technical Specification 3.15.B and is reportable per Technical Specification 6.6.2.b.(4)

### 2. PROBABLE CONSEQUENCES of OCCURRENCE:

At no time during the event did the containment vessel exceed the limits allowed by the operating envelope set forth in Technical Specification 3.8. These limits are governed by containment pressure, containment temperature and service water temperature. Because the containment air pressure remained subatmospheric and one containment vacuum pump was returned to service within the time allowed by Technical Specification 3.0.1, the health and safety of the public were not affected.

#### 3. CAUSE OF EVENT:

Both containment vacuum pumps were inoperable due to binding of the sliding vanes in the pump's rotor.

These vanes fit into machined slots in the rotor, one vane per slot; the rotor is housed inside the pump casing. As the rotor spins, the vanes are thrown outward causing their outer edge to come in contact with the pump casing. The distance between the rotor and the inner surface of the casing is not constant around the perimeter, it is a maximum near the inlet port and a minimum near the exhaust port. Condensation of moisture from the containment atmosphere in combination with entrained particulates resulted in the vanes binding in their slots. This allowed free rotation of the rotor but inhibited the intake-exhaust cycle of the pump.

#### 4. IMMEDIATE CORRECTIVE ACTIONS:

The immediate corrective action was to replace one of the inoperable containner t vacuum pumps with a readily available spare.

### 5. SUBSEQUENT CORRECTIVE ACTIONS:

The subsequent corrective action was to rebuild and replace the redundant pump.

#### 6. ACTIONS TAKEN TO PREVENT RECURRENCE:

The containment vacuum system is designed so as not to require continuous operation of the vacuum pumps. Each containment vacuum pump is of 100% capacity and simultaneous inoperability of both pumps has not been a recurring problem. For this reason, no future corrective action is planned

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at this time.

# 7. GENERIC IMPLICATIONS:

Moisture laden air in combination with particulate matter can result in inoperability of the rotor-vane type vacuum pumps.