

LICENSEE EVENT REPORT

CONTROL BLOCK: \_\_\_\_\_ (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

V A S P S | 1 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 3 | 4 | 1 | 1 | 1 | 1 | 4 | \_\_\_\_\_ | 5  
9 LICENSEE CODE 14 15 LICENSE NUMBER 25 26 LICENSE TYPE 30 37 CAT 38

REPORT SOURCE | L | 6 | 0 | 5 | 0 | 0 | 0 | 2 | 8 | 0 | 7 | 1 | 0 | 2 | 0 | 8 | 2 | 8 | 1 | 1 | 1 | 9 | 8 | 2 | 9 |  
60 61 DOCKET NUMBER 66 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)  
10 With the unit at 100%, both containment vacuum pumps were declared inoperable when  
11 they failed to develop flow. Inoperability of both pumps is contrary to T.S.  
12 3.15.B and is reportable per T.S.6.6.2.b(2). At no time did the containment exceed  
13 the limits allowed by the operating envelope governed by containment temperature,  
14 containment pressure and service water temperature as set forth in T.S.3.8.  
15 Therefore, the health and safety of the public would not have been affected.  
16  
17  
18

SYSTEM CODE | S | A | 11 | CAUSE CODE | E | 12 | CAUSE SUBCODE | B | 13 | COMPONENT CODE | P | U | M | P | X | X | 14 | COMP. SUBCODE | H | 15 | VALVE SUBCODE | Z | 16 |  
9 10 11 12 13 18 19 20  
LER/RO REPORT NUMBER | 8 | 2 | 21 22 | SHUTDOWN METHOD | Z | 21 | HOURS | 0 | 0 | 0 | 0 | 22 | ATTACHMENT SUBMITTED | Y | 23 | NRPD-4 FORM SUB. | N | 24 | PRIME COMP. SUPPLIER | L | 25 | REVISION NO. | 0 | 32 | COMPONENT MANUFACTURER | G | 0 | 4 | 6 | 26 |  
17 21 22 23 24 26 27 28 29 30 31 32 33 34 35 36 37 40 41 42 43 44 47

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)  
27 Pump inoperability was the result of sliding vanes held in the pump rotor becoming  
28 bound in their respective guide slots due to water damage to the carbon vanes. A  
29 broken belt was replaced on pump 1-CV-P-1B. Pump 1-CV-P-1A was replaced with the  
30 ready-spare. Water was drained from both pumps.  
31  
32  
33

FACILITY STATUS | E | 28 | % POWER | 1 | 0 | 0 | 29 | OTHER STATUS | N/A | 30 | METHOD OF DISCOVERY | A | 31 | DISCOVERY DESCRIPTION | Operator Observation | 32 |  
7 8 9 10 12 13 44 45 46 80

ACTIVITY RELEASED | Z | 33 | CONTENT OF RELEASE | Z | 34 | AMOUNT OF ACTIVITY | N/A | 35 | LOCATION OF RELEASE | N/A | 36 |  
7 8 9 10 11 44 45 80

PERSONNEL EXPOSURES NUMBER | 0 | 0 | 0 | 37 | TYPE | Z | 38 | DESCRIPTION | N/A | 39 |  
7 8 9 10 11 12 13 80

PERSONNEL INJURIES NUMBER | 0 | 0 | 0 | 40 | DESCRIPTION | N/A | 41 |  
7 8 9 10 11 12 13 80

LOSS OF OR DAMAGE TO FACILITY TYPE | Z | 42 | DESCRIPTION | N/A | 43 |  
7 8 9 10 11 12 13 80

ISSUED | N | S | 44 | PDR ADOCK 05000280 | PDR | N/A | 45 | NRC USE ONLY | \_\_\_\_\_ | 58 59 |  
7 8 9 10 11 12 13 14 15 58 59 80

ATTACHMENT 1  
SURRY POWER STATION, UNIT NO. 1  
DOCKET NO: 50-280  
REPORT NO: 82-120/03L-0  
EVENT DATE: 10-20-82

TITLE OF THE EVENT: BOTH CONTAINMENT VACUUM PUMPS INOPERABLE

1. Description of the Event:

On 10/20/82, with the unit at 100% power, both containment vacuum pumps, 1CV-P-1A and 1B, were noted to be developing zero flow. Both pumps were declared inoperable.

Inoperability of both mechanical containment vacuum pumps is contrary to Technical Specification 3.15.B and is reportable per Technical Specification 6.6.2.b.(2).

2. Probable Consequences and Status of Redundant Equipment:

At no time during this event did the containment exceed the limits of 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 sub-atmospheric and both containment vacuum pumps were 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:

Containment Vacuum Pumps 1-CV-P-1A and 1B were inoperable due to binding of the sliding vanes in the pump rotor. These vanes fit in machined slots in the rotor, one vane per slot, with the rotor housed in 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, (maximum near inlet port, minimum near discharge port) thus for pump operation, the carbon vanes must be free to slide in and out. Condensation of moisture from the containment building atmosphere in combination with entrained particles resulted in the vanes binding in their slots. In pump 1A, this allowed free rotation of the rotor, but inhibited the intake-exhaust cycle of the pump. In pump 1B, the vane binding resulted in first a slipping belt drive, which later resulted in a broken belt.

4. Immediate Corrective Actions:

The immediate corrective actions were to blow the water from the discharge lines, then replace the belt on 1-CV-P-1B.

5. Subsequent Corrective Actions:

Vacuum pump 1-CV-P-1A was replaced with a shop spare.

6. Actions Taken to Prevent Recurrence:

Engineering Study 82-04, recommends that the pumps be re-classified and replaced with pumps more compatible with containment environment. A Design Change has been initiated to replace the pumps with equipment better suited to the system conditions.

7. Generic Implications:

None.