

U.S. NUCLEAR REGULATORY COMMISSION
LICENSEE EVENT REPORT

CONTROL BLOCK / / / / / / / (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)
 /0/1/ /V/A/N/A/S/2/ (2) /0/0/-/0/0/0/0/0/-/0/0/ (3) /4/1/1/1/1/ (4) / / / (5)
 LICENSEE CODE LICENSE NUMBER LICENSE TYPE CAT
 /0/1/ REPORT /L/ (6) /0/5/0/0/0/3/3/9/ (7) /1/2/1/3/8/1/ (8) /0/1/0/6/8/2/ (9)
 SOURCE DOCKET NUMBER EVENT DATE REPORT DATE
 EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

/0/2/ / On December 13, 1981, one of two steam trip valves to the Steam Driven Auxiliary /
 /0/3/ / Feedwater pump, jammed open during the periodic testing. The valve was isolated /
 /0/4/ / for repair thereby rendering the pump inoperable. The pump was again removed /
 /0/5/ / from service on December 16, 1981. Since two 50% capacity electric driven Auxili- /
 /0/6/ / ary Feedwater pumps remained available and the affected pump was restored to ser- /
 /0/7/ / vice within the Action Statement, the public health and safety were not affected. /

/0/8/ / This event is contrary to T.S. 3.7.1.2 and reportable pursuant to T.S. 6.9.1.9.b. /
 SYSTEM CAUSE CAUSE COMP. VALVE
 CODE CODE SUBCODE COMPONENT CODE SUBCODE SUBCODE

/0/9/ /S/H/ (11) /X/ (12) /Z/ (13) /V/A/L/V/E/X (14) /F/ (15) /D/ (16)
 LER/RO EVENT YEAR SEQUENTIAL OCCURRENCE REPORT REVISION
 REPORT NO. REPORT NO. TYPE NO.
 (17) NUMBER /8/1/ /-/ /0/8/9/ / \ / /0/3/ /L/ /-/ /0/

ACTION FUTURE EFFECT SHUTDOWN ATTACHMENT NPRD-4 PRIME COMP. COMPONENT
 TAKEN ACTION ON PLANT METHOD HOURS SUBMITTED FORM SUB. SUPPLIER MANUFACTURER
 /X/ (18) /X/ (19) /Z/ (20) /Z/ (21) /0/0/0/0/ (22) /Y/ (23) /N/ (24) /A/ (25) /F/1/3/0/ (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

/1/0/ / The cause for the trip valve jamming open was due to a disc nut being jammed in /
 /1/1/ / the valve seat. The disc nut was found to be off the internals of one of three /
 /1/2/ / upstream steam supply check valves. The nut was removed and the operability of /
 /1/3/ / the steam trip valve and the associated feedwater pump was verified by successful /
 /1/4/ / completion of a periodic surveillance test. Inspected and repaired check valves. /

FACILITY STATUS %POWER OTHER STATUS (30) METHOD OF DISCOVERY DISCOVERY DESCRIPTION (32)
 /1/5/ /E/ (28) /1/0/0/ (29) / NA / /B/ (31) /Due to failed surveillance test/

ACTIVITY CONTENT AMOUNT OF ACTIVITY (35) LOCATION OF RELEASE (36)
 /1/6/ /Z/ (33) /Z/ (34) / NA / / NA /

PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION (39)
 /1/7/ /0/0/0/ (37) /Z/ (38) / NA /

PERSONNEL INJURIES NUMBER DESCRIPTION (41)
 /1/8/ /0/0/0/ (40) / NA /

LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION (43)
 /1/9/ /Z/ (42) / NA /

PUBLICITY ISSUED DESCRIPTION (45)
 /2/0/ /N/ (44) / NA /

8201290249 820106
 PDR ADOCK 05000339
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NAME OF PREPARER W. R. CARTWRIGHT PHONE (703) 894-5151

NRC USE ONLY
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Description of Event

On December 13, 1981 with Unit 2 at 100% power, one of two parallel steam trip valves to the Turbine Driven Auxiliary Feedwater pump jammed partially open during a periodic surveillance test. The valve was isolated for repair, therefore rendering the feedwater pump inoperable. On December 16, 1981 the Turbine Driven Auxiliary Feedwater pump was removed from service in order that three steam supply check valves, one in each steam supply line, could be isolated, disassembled and inspected for missing and/or loose internals.

Each of the above events rendered the flowpath for Auxiliary Feedwater to "A" Steam Generator inoperable, and is contrary to T.S. 3.7.1.2, and reportable pursuant to T.S. 6.9.1.9.b.

Probable Consequences of Occurrence

Since two motor driven 50% capacity Auxiliary Feedwater pumps remained available to provide emergency feedwater to the steam generators, and a strainer on the inlet to the Steam Driven Auxiliary Feedwater pump would have prevented any loose valve internals from entering the turbine during previous operation, the public health and safety were not affected.

Cause of Event

The Steam Driven Auxiliary Feedwater pump was removed from service because one of two parallel steam trip valves to the pump jammed partially open during a surveillance test. The valve was isolated for repair thereby removing the feedwater pump from service. Maintenance personnel determined that a 3/4" nut jammed in the valve seat was the cause for the valve jamming open. Investigation of the origin of this nut indicated that it belonged to one of the three check valves in the steam supply lines to the Turbine Driven Auxiliary Feedwater pump. The nut is intended to hold the valve disc to the hinge. The nut is then pinned to the disc stem and the pin peened on both sides. All three check valves in question were disassembled and one valve was found to have a disc nut, washer and pin missing. The other two check valves were found to have loose disc nuts. It is believed that the pin securing the disc nut to the disc stem was either not installed or not properly peened or otherwise locked in place during manufacture. As a result the pin worked its way out and the nut backed off.

Three days later on December 16, 1981, the Unit No. 1 check valves in the steam supply lines to the Steam Driven Auxiliary Feedwater pump were removed from service and a disc nut was found missing on one check valve. This item was reported under LER-NI-81-89.

Immediate Corrective Action

The immediate corrective action taken was to isolate and cycle the steam trip valve. When this action would not free the valve the associated feedpump was declared inoperable. The trip valve was disassembled and a nut was found in the seat of the valve. The nut was removed and the valve reassembled and cycled successfully. The three upstream check valves, one of which was suspected of having lost a disc nut, were disassembled and on one of the valves a disc nut, washer and pin were found missing. The nuts, washers and pins for all three valves were replaced with a like material. The valves were reassembled and the Steam Driven Auxiliary Feedwater pump was restored to service.

Scheduled Corrective Action

The Crane manufacturer's representative has been contacted concerning the incident discussed in this report. The representative feels that the problem experienced with Crane check valves is an isolated incident and could only occur if the retaining pins were not properly peened at the factory. The representative does not suggest tack welding the nuts to the disc, in that a properly peened retaining pin will be ample to hold the nut. Further investigation of similiar types of check valves installed at North Anna 1 and 2 will be conducted to determine if their repair is necessary.

Actions Taken to Prevent Recurrence

Any further action taken will be determined as specified in Scheduled Corrective Action above.

Generic Implications

The check valves identified as defective in this LER are Crane 600# Cast Steel Swing Check Valves part number 175 $\frac{1}{2}$ X. The manufacturer has been contacted and has no other reports of the same types of failures of these check valves by other customers. North Anna will conduct an inspection of all or a portion of these types of valves now installed and a determination of its generic implication will then be made.