

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
REPORT SOURCE /L/ (6) /0/5/0/0/0/3/3/9/ (7) /0/7/1/4/8/2/ (8) /0/8/2/6/8/2/ (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

/0/2/ / On July 14, 1982, with Unit No. 2 in cold shutdown, the thermal sleeve on the "B"/
/0/3/ / Loop SI Accumulator to the Reactor Coolant Cold Leg Piping was found to be dis- /
/0/4/ / placed. Subsequent visual examination indicated that the thermal sleeve had /
/0/5/ / moved 4.75 inches. An additional examination detected three additional sleeves /
/0/6/ / with cracked weld indications. The thermal sleeves were constrained and no /
/0/7/ / immediate safety concern was identified; therefore, the health and safety of /
/0/8/ / the general public were not affected. This is reportable by T.S. 6.9.1.9.d. /

SYSTEM CAUSE CAUSE COMP. VALVE
CODE CODE SUBCODE COMPONENT CODE SUBCODE SUBCODE

/0/9/ /S/F/ (11) /B/ (12) /A/ (13) /P/I/P/E/X/X/ (14) /D/ (15) /Z/ (16)
SEQUENTIAL OCCURRENCE REPORT REVISION
LER/RO EVENT YEAR REPORT NO. CODE TYPE NO.

(17) REPORT NUMBER /8/2/ /-/ /0/4/3/ / / /0/3/ /X/ /-/ /1/

ACTION FUTURE EFFECT SHUTDOWN ATTACHMENT NPRD-4 PRIME COMP. COMPONENT
TAKEN ACTION ON PLANT METHOD HOURS SUBMITTED FORM SUB. SUPPLIER MANUFACTURER

/F/ (18) /X/ (19) /C/ (20) /Z/ (21) /0/0/0/0/ (22) /Y/ (23) /N/ (24) /N/ (25) /S/2/8/0/ (26)

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

/1/0/ / The mechanism of the thermal sleeve weld failure is being evaluated by Westing- /
/1/1/ / house. The four thermal sleeves with failed or defective welds were removed /
/1/2/ / during the outage. The remaining thermal sleeves (of similar design) have been /
/1/3/ / inspected using non-destructive techniques for future comparison. /
/1/4/ /

FACILITY STATUS %POWER OTHER STATUS METHOD OF DISCOVERY DISCOVERY DESCRIPTION (32)
/1/5/ /G/ (28) /0/0/0/ (29) / NA / (30) /C/ (31) /Thermal Sleeve Inspection/

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 (43) TYPE DESCRIPTION
/1/9/ /Z/ (42) / NA /

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

NAME OF PREPARER W. R. CARTWRIGHT PHONE (703) 894-5151

UPDATE REPORT: Previous Report Date 08-09-82

Virginia Electric and Power Company
North Anna Power Station, Unit No. 2
Docket No. 50-339
Attachment to LER 82-043/03X-1

Attachment: Page 1 of 2

Description of Event

On July 14, 1982, with Unit No. 2 in cold shutdown, the thermal sleeve on the "B" Loop SI Accumulator to the Reactor Coolant Cold Leg Piping was found to be displaced. The welds that attached the thermal sleeve to the pipe nozzle had broken and the sleeve had moved down the pipe 4.75 inches. The surveillance was a result of a draft letter received from Westinghouse on July 6, 1982 regarding thermal sleeve weld failures. Radiographic examination indicated defective or failed welds on three other thermal sleeves.

Probable Consequences of Occurrence

The failed thermal sleeves were constrained and did not pose a safety concern. A Westinghouse safety evaluation dated August, 1982 indicated that the thermal sleeves would not cause a safety problem even if they were flushed into the Reactor Vessel lower plenum. The lower core support forging or core support plate would prevent any foreign material from affecting the reactor core or control rods.

A Westinghouse analysis, performed prior to startup, confirmed the acceptability of operation with the remaining thermal sleeves in place. A cold leg thermal sleeve failure could result in the sleeve being carried to the lower vessel. As discussed above this would not present a safety problem. The only hot leg thermal sleeve is in the pressurizer surge line. Failure of the pressurizer thermal sleeve could result in the sleeve traveling to the hot leg of the steam generator. This could result in damage to an instrumentation weld. Severe damage to the instrumentation weld could result in a small Reactor Coolant System leak which would be within the makeup capability of the charging pump. Additional noise monitoring instrumentation has been installed to detect thermal sleeve failures.

Cause of Event

The cause of the failed welds on the thermal sleeves is not known at this time. Westinghouse is investigating the mode of failure.

Immediate Corrective Action

A total of eleven thermal sleeves on Unit No. 2 have been examined to determine if there are additional weld failures. Radiographic examination indicated that the thermal sleeve welds have cracked on the Cold Leg Safety Injection Line and the SI accumulator line on Loop "C" and the normal charging line and SI accumulator line on Loop "B". The thermal sleeve rotated about forty degrees in the normal charging line but has not been displaced from its original position. The accumulator

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lines are twelve inches in diameter, the Safety Injection Line is six inches and the Charging Line is three inches.

The four thermal sleeves that had defective or failed welds have been removed.

Scheduled Corrective Action

Non-Destructive Examination of the remaining thermal sleeves has been performed to provide baseline data for future inspections. Examinations will be performed during subsequent refueling outages to determine if the welds on the remaining thermal sleeves have degraded.

Action Taken To Prevent Recurrence

The removal of the affected thermal sleeves will eliminate the problem of weld failure on those lines. Regular surveillance of the remaining thermal sleeves should provide adequate indication of weld degradation.

Generic Implications

Westinghouse has already notified VEPCO and other plants that have the same type of thermal sleeves of the thermal sleeve weld failures at another plant. Thermal sleeves are located at pipe nozzles where thermal stresses are known to exist; therefore, thermal sleeve weld failure has, by nature of the design, generic implications.

Generic analysis of operation without thermal sleeve, has been accomplished by Westinghouse. Plant specific analysis was completed before unit operation.

Eleven thermal sleeves on Unit No. 1 at North Anna have been examined and two indications of cracked welds were found.