

LICENSEE EVENT REPORT

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

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7 8 9 LICENSEE CODE 14 15 LICENSE NUMBER 25 26 LICENSE TYPE JO 57 CAT 58

CONT
01 REPORT SOURCE L 6 0 5 0 0 0 3 3 1 7 0 9 1 2 8 2 8 0 9 1 2 4 8 2 9
7 8 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES 10

02 During normal operation HPCI steam supply isolated due to erroneous sign
03 al from TDS-2260A. HPCI declared inop and 7-day LCO entered per T.S.3.5.
04 D.2. Isolation signal cleared and HPCI op tested. HPCI turbine did not m
05 eet fast start requirements. ECCS subsystems testing resulted in RCIC de
06 clared inop due to turbine trip. 24-hr LCO. RCIC retest op. 24-hr LCO en
07 ded. HPCI op tested sat but 7-day LCO not lifted. RCIC turbine trip on o
08 p test. 24-hr LCO. RCIC and HPCI made op. LCOs lifted. Not repetitive.

09 SYSTEM CODE S F 11 CAUSE CODE E 12 CAUSE SUBCODE F 13 COMPONENT CODE I N S T R U 14 COMP. SUBCODE T 15 VALVE SUBCODE Z 16
17 LER/RO REPORT NUMBER 8 2 21 22 EVENT YEAR 23 SHUTDOWN METHOD Z 21 26 HOURS 0 0 1 1 27 ATTACHMENT SUBMITTED Y 23 28 OCCURRENCE CODE 0 1 29 REPORT TYPE T 30 REVISION NO. 0 32
ACTION TAKEN A 18 33 FUTURE ACTION Z 19 34 EFFECT ON PLANT B 20 35 SHUTDOWN METHOD Z 21 36 HOURS 0 0 1 1 37 ATTACHMENT SUBMITTED Y 23 41 NPRO-4 FORM SUB. N 24 42 PRIME COMP. SUPPLIER A 25 43 COMPONENT MANUFACTURER R 2 1 7 8 25 47

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS 27

10 Isolation signal due to failed resistor in TDS-2260A power supply. TDS-2
11 260A replaced and tested sat. HPCI turbine did not fast start due to out
12 -of-calib PS-2288 on HPCI turbine main oil pump. PS-2288 recalib and tes
13 ted sat. RCIC turbine trip on overspeed due to pump discharge PT-2506 ou
14 t-of-calib. PT-2506 recalib and tested sat. Incr surv on PS-2288,PT-2506

15 FACILITY STATUS E 28 29 % POWER 0 3 4 30 OTHER STATUS NA 31 METHOD OF DISCOVERY A 32 DISCOVERY DESCRIPTION Operator Observation

16 ACTIVITY CONTENT Z 33 34 RELEASED OF RELEASE Z 34 35 AMOUNT OF ACTIVITY NA 36 LOCATION OF RELEASE NA

17 PERSONNEL EXPOSURES NUMBER 0 0 0 37 38 TYPE Z 38 39 DESCRIPTION NA

14 PERSONNEL INJURIES NUMBER 0 0 0 40 41 DESCRIPTION NA

13 LOSS OF OR DAMAGE TO FACILITY TYPE Z 42 43 DESCRIPTION NA
PUBLICITY ISSUED N 44 45 DESCRIPTION NA
8210040376 820924
PDR ADOCK 05000331
S PDR

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NRC USE ONLY

DUANE ARNOLD ENERGY CENTER

Iowa Electric Light and Power Company

Licensee Event Report - Supplemental Data

Docket No. 050-0331

Licensee Event Report Date: 9-24-82

Reportable Occurrence No: 82-056

Event Description:

During normal operation on 9-12-82, a HPCI area steam leak alarm was activated, and the inboard HPCI steam supply isolation valve, MO-2238, was automatically closed. The steam leak alarm was activated by the temperature differential switch, TDS-2260A, which detects a leak in the HPCI area by the temperature difference between the ventilation intake and exhaust. HPCI was declared inoperable and a 7-day limiting condition for operation (LCO) was entered per Technical Specification 3.5.D.2. Testing of the remaining Emergency Core Cooling System (ECCS) subsystems (i.e. RCIC, LPCI, Core Spray, and ADS trip systems) was commenced. The core spray subsystem was operability tested satisfactorily. The isolation signal was then cleared and HPCI operability testing began. The HPCI turbine reached rated speed in approximately 38 seconds instead of the 25 seconds required by the test procedure. HPCI remained inoperable and testing of the remaining ECCS subsystems continued. During operability testing of the Reactor Core Isolation Cooling (RCIC) subsystem, the RCIC turbine tripped at rated pressure and flow. RCIC was declared inoperable. A 24-hour LCO was entered and plant shutdown was commenced per T.S. 3.5.D.3. The 24-hour LCO was reduced to a 7-day LCO after approximately 6-3/4 hours when RCIC was operability tested satisfactorily. The two remaining ECCS subsystems, the automatic depressurization system (ADS) trip logic and the low pressure coolant injection (LPCI) system were tested satisfactorily per T.S. 3.5.D.2 which requires, when HPCI is inoperable, that the remaining ECCS subsystems be proven operable daily. HPCI was operability tested satisfactorily, but the 7-day LCO was not lifted per management decision. Based on a review of the incident, site management decided to conservatively continue the 7-day LCO to allow a more thorough investigation of the problem. Approximately 16 hours later, on 9-13-82, the daily testing of the ECCS subsystems was again commenced per T.S. 3.5.D.2. During this testing, the RCIC turbine again tripped at rated flow and pressure. A second 24-hour LCO was entered per T.S. 3.5.D.3 and reactor shutdown was commenced. The 24-hour LCO reverted to the original 7-day LCO after approximately 4-1/2 hours when RCIC was operability tested satisfactorily and declared operable. The 7-day LCO was ended after approximately 1-1/2 days when HPCI operability was demonstrated. There have been no previous similar occurrences.

Cause Description:

The isolation of the HPCI steam supply was the result of an erroneous signal from the HPCI area leak detection temperature differential switch TDS-2260A. The false leakage signal was caused by the unpredictable random failure of a resistor in the integral power supply for TDS-2260A. TDS-2260A is a Riley Company Model 86VTFF temperature differential switch.

The inability of the HPCI turbine to reach rated speed in the required time was due to an out-of-calibration discharge pressure switch, PS-2288, on the shaft-driven HPCI turbine lube oil pump. PS-2288 provides a signal to the auxiliary oil pump that the shaft-driven pump is up to rated pressure which halts the DC motor-driven auxiliary oil pump. However the auxiliary oil pump also provides hydraulic pressure to open the HPCI turbine steam control valve. When the auxiliary pump ended operation prematurely, the control valve opening was slowed or halted, resulting in a slower start speed for the HPCI turbine. PS-2288 was out-of-calibration due to instrument drift. PS-2288 is a Square "D" Company model ACW-ZZ pressure switch.

The tripping of the RCIC turbine at rated flow and pressure was due to out-of-calibration RCIC pump discharge pressure transmitter PT-2506. Technical Specification 4.5.E.1 requires the RCIC pump to deliver 400 GPM at 1020 psig. The discharge pressure indication used to determine whether this specification is met is transmitted by PT-2506. While attempting to reach the required discharge pressure, the turbine tripped from overspeed because the pressure of 1020 psig indicated via PT-2506 corresponded to an actual pump discharge pressure of approximately 1250 psig. PT-2506 was scheduled for calibration every 5 years. PT-2506 is a GE model 50-551 pressure transmitter.

Corrective Action:

TDS-2260A was replaced with a like-for-like spare and functionally tested satisfactorily.

PS-2288 was recalibrated and the HPCI turbine fast-started three times with satisfactory results. Surveillance on PS-2288 will be permanently changed from once per cycle to annual to preclude recurrence.

PT-2506 was calibrated and functionally tested satisfactorily. PT-2506 is to be calibrated quarterly as a requirement of ASME Section 11 Valve and Pump Operability inservice inspection.

To ensure a thorough response to plant maintenance problems in the future, a program to promptly identify the root cause of the problem and to initiate appropriate corrective action is being developed. It is our intention to implement this program by November 1, 1982.