

LICENSEE EVENT REPORT

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

1 N E F C S 1 2 0 0 1 0 0 0 0 0 0 0 3 4 1 1 1 1 4 5
8 9 LICENSEE CODE 14 15 LICENSE NUMBER 25 26 LICENSE TYPE 30 57 CAT 58

ON'T
1 REPORT SOURCE L 6 0 5 0 0 0 2 8 5 7 0 8 3 0 8 2 8 0 9 2 9 8 2 9
8 60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)
1 2 During pre-operational testing of the redundant containment hydrogen monitors, a
1 3 control room operator noticed that there was no valve position indication for in-
1 4 board containment isolation valves, HCV-820B and 821B, associated with hydrogen
1 5 monitor VA-81A. Subsequently, it was determined that the subject valves had failed
0 6 open. These valve failures resulted in noncompliance with Technical Specification
0 7 2.6(1)a. Emergency Procedure EP-25, "Loss of Containment Integrity," was immediately
0 8 implemented. The redundant outboard isolation valves, HCV-820A and 821A, were
8 9 verified closed and operable. 80

9 SYSTEM CODE S A 11 CAUSE CODE E 12 CAUSE SUBCODE A 13 COMPONENT CODE V A L V E X 14 COMP. SUBCODE X 15 VALVE SUBCODE D 16
9 10 11 12 13 18 19 20
17 LER/RO REPORT NUMBER 8 2 21 22 0 1 7 24 26 0 3 28 29 L 30 0 32
18 ACTION TAKEN X 18 33 FUTURE ACTION B 19 34 EFFECT ON PLANT Z 20 35 SHUTDOWN METHOD Z 21 36 HOURS 0 0 0 0 37 40 ATTACHMENT SUBMITTED Y 23 41 NPD-4 FORM SUB. N 24 42 PRIME COMP. SUPPLIER L 25 43 COMPONENT MANUFACTURER V 0 3 0 44 47 47
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)
1 0 After troubleshooting the two subject valves, it was discovered that the Valcor
1 1 Engineering Company solenoid valves (Part No. 141160001) contained solenoid coils
1 2 that had failed. One coil was shorted internally and the other had shorted to
1 3 ground. The District has postulated that an elevated DC voltage may have caused
1 4 the solenoids to fail. In order to ensure the maintenance of containment integrity,
per the Fort Calhoun Technical Specifications definition, both valves were capped
off inside containment within six hours from initiation of the event. The valves
and penetrations were then leak tested to ensure that no leakage paths existed
from containment to atmosphere. Please refer to Attachment No. 2 for further
corrective actions. 80

5 FACILITY STATUS E 28 8 9 % POWER 1 0 0 29 10 12 OTHER STATUS NA 13 30 METHOD OF DISCOVERY B 31 45 DISCOVERY DESCRIPTION Operator Observation 46 32

6 ACTIVITY CONTENT Z 33 8 9 RELEASED OF RELEASE Z 34 10 11 AMOUNT OF ACTIVITY NA 44 35 LOCATION OF RELEASE NA 45 36

7 PERSONNEL EXPOSURES NUMBER 0 0 0 37 8 9 TYPE Z 38 11 12 DESCRIPTION NA 13 39

8 PERSONNEL INJURIES NUMBER 0 0 0 40 8 9 DESCRIPTION NA 11 12 41

9 LOSS OF OR DAMAGE TO FACILITY TYPE Z 42 8 9 DESCRIPTION NA 10 11 43

0 PUBLICITY ISSUED N 44 8 9 DESCRIPTION NA 10 11 45
8210050303 821001
PDR ADOCK 05000285
S PDR

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68 69 80

GPO 817-826

LER No. 82-017
Omaha Public Power District
Fort Calhoun Station Unit No. 1
Docket No. 05000285

ATTACHMENT NO. 1

Safety Analysis

The Fort Calhoun Station is designed such that no single failure can prevent the safe shutdown of the plant or result in the loss of containment integrity.

The function of inboard containment isolation valves HCV-820B and 821B and the redundant outboard isolation valves HCV-820A and 821A is to isolate the containment hydrogen monitor (located outside of containment) from the containment atmosphere and maintain containment integrity when the monitor is not in service. The inboard valves are "fail open" valves and the outboard valves are "fail closed" valves. The hydrogen monitor functions as a "once thru" system in that a containment air sample enters the monitor through HCV-820B and 820A and is then exhausted back into containment through HCV-821A and 821B. Although the inboard isolation valves failed open, as designed in the event of an electrical failure, the redundant isolation valves HCV-820A and 821A were verified closed and operable and, thus, were capable of preventing a release from the containment atmosphere.

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ATTACHMENT NO. 2

Corrective Action

After discovering that the inboard containment isolation valves, HCV-820B and HCV-821B, had failed open, troubleshooting efforts commenced immediately. During troubleshooting, it was discovered that one of the subject solenoid valves contained an internally shorted coil and the other solenoid valve coil was shorted to ground. This condition effectively placed a short across the solenoid's 125 volt DC electrical supply line which caused the fuses to blow. This resulted in the loss of valve position indication in the Control Room and allowed the valves to fail open.

Because of the convenient physical location of the valves, and the lack of valve repair parts onsite, the supply and discharge lines for the subject hydrogen monitor were capped inside containment to restore containment integrity, as defined in the Fort Calhoun Station Technical Specifications. A leak rate test was then performed between the cap and the outboard isolation valves. The leak rate test, conducted at 60 psig, proved that both penetrations were isolated and functional. The District completed this work in less than six hours from the time the event commenced and, thus, Technical Specification 2.0.1(1) was not invoked.

As a result of discussions with Valcor, the District has determined that the solenoid valves utilized for this modification were intended for service at 125 volts DC \pm 10%. During the month preceding the failure of the two solenoid valves, the Fort Calhoun Station batteries had been placed on an equalizing charge of 140 volts DC. The District has postulated that this equalizing charge may have caused the valves to fail since the valves were energized at this voltage for the entire period of time the batteries were being charged. Valcor has indicated that a solenoid modification kit is available which would ensure solenoid valve operability at the higher equalizing charge voltage. Therefore, the District intends to replace the damaged solenoid coils on HCV-820B and 821B, and install the subject modification kits on these valves by the end of the upcoming 1983 refueling outage. Additionally, the outboard Valcor isolation valves for VA-81A and for the redundant hydrogen monitor, VA-81B, will have solenoid modification kits installed during the 1983 outage to ensure their operability at elevated voltages. The inboard isolation valves for VA-81B are manufactured by Fisher and are designed to operate at the higher voltage.

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ATTACHMENT NO. 3

Failure Data

This is the fourth reportable failure of a containment isolation valve involving solenoid valve failures. The other failures are documented in LER's 82-002, 82-006, and 82-015.