

LICENSEE EVENT REPORT

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---------------|---|---|---|---|---|----|----------------|---|---|---|---|---|---|---|---|---|----|--------------|---|---|---|---|----|-----|--|---|--|--|----|
| 0 | 1 | N | E | F | C | S | 1 | 2 | 0 | 0 | - | 0 | 0 | 0 | 0 | - | 0 | 0 | 3 | 4 | 1 | 1 | 1 | 1 | 4 | | | 5 | | | |
| 7 | 8 | LICENSEE CODE | | | | | | 14 | LICENSE NUMBER | | | | | | | | | | 25 | LICENSE TYPE | | | | | 30 | CAT | | | | | 58 |

REPORT SOURCE 0 1 7 8 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

60 61 DOCKET NUMBER 68 69 EVENT DATE 74 75 REPORT DATE 80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | During pre-operational testing of the redundant containment hydrogen monitors, a
0 3 | control room operator noticed that there was no valve position indication for in-
0 4 | board containment isolation valves, HCV-820B and 821B, associated with hydrogen
0 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
2.6(1)a. Emergency Procedure EP-25, "Loss of Containment Integrity", was immediately
0 7 | implemented. The redundant outboard isolation valves, HCV-820A and 821A, were
0 8 | verified closed and operable.

| | | | | | | | | | | | | | | | |
|----------------------|----|---------------|----|-----------------------|----|-----------------|----|----------------|----|----------------------|----|---------------|----|---------------|----|
| 09 | | SYSTEM CODE | | CAUSE CODE | | CAUSE SUBCODE | | COMPONENT CODE | | | | COMP. SUBCODE | | VALVE SUBCODE | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| | | S | A | E | | A | | V | A | L | V | E | X | X | D |
| LER/RO REPORT NUMBER | | EVENT YEAR | | SEQUENTIAL REPORT NO. | | OCCURRENCE CODE | | REPORT TYPE | | REVISION NO. | | | | | |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | | | | |
| 17 | | 8 | 3 | 0 | 1 | 7 | | 0 | 3 | L | 1 | | | | |
| ACTION TAKEN | | FUTURE ACTION | | EFFECT ON PLANT | | SHUTDOWN METHOD | | HOURS | | ATTACHMENT SUBMITTED | | | | | |
| 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | | | | |
| X | B | Z | | Z | | 0 | 0 | 0 | 0 | Y | | | | | |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | | | | |
| | | | | | | | | | | | | | | | |

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 After troubleshooting the two subject valves, it was discovered that the isolation valves contained Conax environmental seals that had failed. One seal was shorted

1 1 internally and the other had shorted to ground. The District has postulated that an elevated DC voltage may have caused the solenoids to get too hot and caused the Conax

1 2 seal failure. In order to ensure the maintenance of containment integrity, per the Fort Calhoun Technical Specifications definition, both valves were capped off inside

1 3 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

1 4 atmosphere. Please refer to Attachment No. 2 for further corrective actions.

| FACILITY STATUS | | | % POWER | OTHER STATUS (30) | METHOD OF DISCOVERY | DISCOVERY DESCRIPTION (32) |
|-----------------|---|--------|------------|-------------------|---------------------|----------------------------|
| 1 | 5 | E (28) | 1 0 0 (29) | NA | B (31) | Operator observation. |

ACTIVITY CONTENT
RELEASED OF RELEASE

1 6 2 33 4 34

7 8 9 10 11

AMOUNT OF ACTIVITY (35)

NA

44

LOCATION OF RELEASE (36)

NA

45 80

| PERSONNEL EXPOSURES | | | | | | | | | |
|---------------------|---|---|------|-------------|----------------|--|--|--|--|
| NUMBER | | | TYPE | DESCRIPTION | | | | | |
| 1 | 7 | 0 | 0 | 0 | (37) Z (38) NA | | | | |

| PERSONNEL INJURIES | | NUMBER | | DESCRIPTION | |
|--------------------|---|--------|---|-------------|-------|
| 1 | 8 | 0 | 0 | 0 | 40 NA |

| 1 9 | | 2 42 | | NA | | 8104010000 820828 | |
|-------------------------------|--|-------------|--|------|--|-------------------|--|
| LOSS OF OR DAMAGE TO FACILITY | | | | (43) | | | |
| TYPE | | DESCRIPTION | | | | | |

7 8 9 10 PUBLICITY (45) 8404080328 820727
 ISSUED DESCRIPTION (44) NA PDR ADOCK 05000285
 2 0 N (44) NA S PDR NRC USE ONLY
 7 8 9 10 68 69 80

8404060328 820929
PDR ADCK 05000285
S PDR

NRC USE ONLY

PHONE: 402-426-4011

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.

Repair efforts commenced during the 1983 refueling outage. At this time, it was discovered that the Conax seals for the solenoid valves had failed rather than the solenoid coil itself.

Because of the inconvenient 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.

ATTACHMENT NO. 2 CONTINUED

During the 1983 refueling outage, the Conax seals for HCV-820B and HCV-821B were replaced. Additionally, the solenoid modification kit for the Valcor solenoid valves has been installed on all Valcor solenoids of this particular model. The indications observed during disassembly of the valves shows the coils had become hotter than normal due to elevated DC voltages and had caused the Conax seal to fail due to high temperatures. The installation of the modification kit should prevent reoccurrence of this type of failure since the solenoids will operate at a lower voltage and thus, a lower temperature.

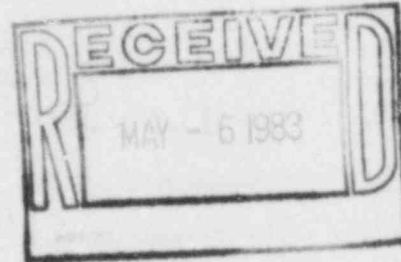
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Fort Calhoun Station Unit No. 1
Docket No. 05000285

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. However, this is the first occurrence of a failure caused by a Conax seal.

Omaha Public Power District
1623 Harney Omaha, Nebraska 68102
402/536-4000
April 29, 1983
FC-215-83



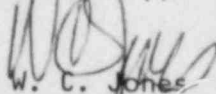
Mr. W. C. Seidle, Chief
Reactor Project Branch 2
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Subject: Fort Calhoun Station Unit No. 1
Docket No. 05000285

Dear Mr. Seidle:

In accordance with the Fort Calhoun Station's Technical Specifications, the Omaha Public Power District, as holder of Facility Operating License DPR-40 submits three copies of Revision 1 to Licensee Event Report 82-017 (regarding Technical Specification 2.6.1.a) to satisfy requirements of Regulatory Guide 1.16. This revision incorporates the corrected data to reflect the actual failure of two containment isolation valves. The only item unaffected by this revision is Attachment No. 1, Safety Analysis. This revision was necessitated due to findings while repairing the two containment isolation valves during the 1983 refueling outage.

Sincerely,


W. C. Jones
Division Manager
Production Operations

WCJ/MRC:jbk
Enclosures

xc: Director, Office of Management
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Washington, DC 20555 (3)

Director, Office of Inspection and
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Fort Calhoun File (2)
Mr. L. A. Yandell
NRC Senior Resident Inspector

Employment with Equal Opportunity
Male/Female

IE22
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