

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

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CON'T

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REPORT SOURCE

L	6	0	5	0	0	0	2	8	5	7	0	9	2	1	8	3	8	1	0	1	3	8	3	9		
60	61	DOCKET NUMBER										68	69	EVENT DATE					74	75	REPORT DATE					80

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 | While at approximately 100% power and during the performance of monthly surveillance

0 3 | test ST-ESF-6, F.2, "Diesel Generator Check," diesel generator DG-2 started and was

0 4 | run up to operating speed. However, the generator field failed to flash and the con-

0 5 | trol room had no indication that the diesel was running (that is, the diesel intake

0 6 | air dampers did not open, the diesel stop light did not go out, and the control room

0 7 | diesel tachometer had no RPM indication). Subsequently, diesel generator DG-2 was

0 8 | shutdown and the redundant diesel generator DG-1 was satisfactorily started to verify

operability. The 161 KV and 345 KV supplies were also available throughout the incident.

0	9	SYSTEM CODE		E	E	11	CAUSE CODE		E	12	CAUSE SUBCODE		A	13	COMPONENT CODE				G	E	N	E	R	A	14	COMP. SUBCODE		X	15	VALVE SUBCODE		Z	16							
7	8	9	10	11	12	13	14	15	16	17	18	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
LER/RO REPORT NUMBER		EVENT YEAR		SEQUENCE REPORT NO.		OCCURRENCE CODE		REPORT TYPE		REVISION NO.		ACTION TAKEN		FUTURE ACTION		EFFECT ON PLANT		SHUTDOWN METHOD		HOURS		ATTACHMENT SUBMITTED		NPRD-4 FORM SUB.		PRIME COMP. SUPPLIER		COMPONENT MANUFACTURER												
83		83		008		03		L		1		A		Z		Z		Z		0000		Y		Y		A		X999												

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 Failure of a modified panalarm, model 70-PCD-25, 125 VDC power supply which normally feeds diesel generator DG-2 speed sensing circuitry caused the diesel DG-2 to be

1 1 declared inoperable. The power supply was repaired and the diesel was retested, per ST-ESF-6, F.2. Subsequently, upon retest the diesel generator exhibited unstable

1 2 terminal voltages and a "Loss of DC Power" annunciator, associated with DG-2 circuitry

1 3 was in alarm. All problems listed above were repaired (see Attachment No. 2) and the

1 4 diesel generator was satisfactorily tested and returned to service on 9/23/83.

FACILITY STATUS (28) E
 % POWER (29) 1 0 0
 OTHER STATUS (30) NA
 METHOD OF DISCOVERY (31) B
 DISCOVERY DESCRIPTION (32) Surveillance Testing
 ACTIVITY CONTENT
 RELEASED OF RELEASE (33) Z
 AMOUNT OF ACTIVITY (35) NA
 LOCATION OF RELEASE (36) NA
 PERSONNEL EXPOSURES
 NUMBER TYPE DESCRIPTION (39) 0 0 0 Z
 PERSONNEL INJURIES
 NUMBER DESCRIPTION (41) 0 0 0
 LOSS OF OR DAMAGE TO FACILITY
 TYPE DESCRIPTION (43) Z
 PUBLICITY
 ISSUED DESCRIPTION (45) N
 8312120331 831201
 PDR ADOCK 05000285
 S PDR
 NRC USE ONLY

NAME OF PREPARER Randy Mueller/Jim Foley

PHONE: 402-426-4011

LER No. 83-008
Omaha Public Power District
Fort Calhoun Station Unit No. 1
Docket No. 05000285

ATTACHMENT NO. 1

Safety Analysis

The Fort Calhoun Station Unit No. 1 electrical distribution system is so designed that no single failure could prevent safe shutdown of the plant if required.

During the time when diesel generator DG-2 was inoperable, the redundant diesel generator DG-1 was operable and available, as were the 161 kv and 345 kv power supplies, and would have been sufficient to mitigate all consequences of an accident, if required to do so.

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ATTACHMENT NO. 2

Corrective Action

During performance of routine monthly diesel surveillance test, ST-ESF-6, F.2 (Diesel Generator Check), diesel generator DG-2 was started and run up to operating speed. However, the generator field flashing circuitry was noticed not to operate, and control room indication, verifying that the diesel had indeed started and was running, was not present. (The missing control room indication was related to diesel speed sensing circuitry and is listed as follows: (1) the diesel intake air dampers did not open, (2) the diesel stop light did not extinguish, and (3) the control room diesel tachometer indicated "0" RPM's.) The diesel generator DG-2 was shutdown and declared inoperable at approximately 1315 on September 21, 1983. Immediately following the shutdown of DG-2, the redundant diesel generator DG-1 was started and verified to be operable. Maintenance Order No. 21740 was initiated to investigate DG-2 problems. As a result of Maintenance Order No. 21740 it was discovered that a power supply (a modified Panalarm model 70-PCD-25) which feeds DG-2 speed sensing circuitry had failed due to a faulty thermistor. The thermistor was a Victory Engineering Company (VECO) model 31D34. Since no thermistors were immediately obtainable, an emergency modification request was initiated and processed in order that the thermistor could be replaced with equivalent hardware/circuitry. Thus, per modification request, MR-FC-83-129, a resistor was used in place of the damaged power supply thermistor. The power supply was then returned to operation for testing as was the diesel DG-2. Subsequently, the diesel started, ran up to correct operating speed, the generator field was verified to have flashed, and all proper control room indicators associated with DG-2 returned to satisfactory operability. However, it was then noticed that the generator output voltage was varying up and down for no apparent reason. The diesel was again shutdown. After checking relay settings and numerous diesel generator exciter circuitry parameters, and finding no apparent problems, the diesel generator was restarted. This time the diesel generator was noticed to only attain one half (1/2) of rated voltage. In addition, the field flash circuitry was not "sealed-in" as required. The diesel was shutdown immediately. Upon investigation it was found that a fuse had blown in the current forcing panel (fuse 2Fu) and had been the cause of the most recent problems. The diesel generator was again restarted. Still, the generator output voltage was noticed to be varying up and down for no apparent reason. The diesel was left running while several measurements were again taken at the diesel exciter and current forcing circuits. As a result a Sylvania ECG5264A-2 zener diode (6ZD) was found to be operating out of specified tolerances. The diesel generator was shutdown and the faulty zener diode was replaced with a spare. At this time, line side fuses for the generator auxiliary transformer were found to be bad and were replaced. Again, the diesel generator DG-2 was restarted. This time the diesel generator was satisfactorily started and voltage was found to be steady and as expected.

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ATTACHMENT NO. 2

Corrective Action (continued)

However, a "125 VDC OFF NORMAL" alarm was also received. The diesel generator was shutdown and diesel circuitry again investigated. A 10 AMP fuse in the generator secondary/auxiliary field flash circuitry had failed and been the cause of alarm. The fuse was replaced.

The diesel generator was restarted and satisfactorily tested per surveillance test ST-ESF-6, F.2, and returned to service on September 23, 1983. It is postulated that the blown fuses as described above were caused by the zener diode failure and/or the voltage variations at the generator output terminals.

It was intended that as soon as VECO 31D34 thermistors became available, the speed sensing power supply circuitry would be returned to its original state by removing the temporarily installed resistor and re-installing a VECO 31D34 thermistor.

On 10/18/83, VECO Model 31D34 thermistors were received on site. However, subsequent efforts to replace a failed thermistor in the diesel generator DG-2 speed sensing circuitry power supply module were not successful as the replacement thermistors were failing a short time after they were installed. It was determined that the speed sensing circuitry power supply had internal problems that were directly related to the thermistor failures. Since there were no available duplicate power supplies, a modification request (MR-FC-83-152) was initiated to eliminate the original speed sensing circuitry panalarm power supply and alter the speed sensing circuitry power feed to accept a 125 VDC supply. (The speed sensing module can accept either a 115 VAC signal, which the panalarm power supply generated, or a 24-140 VDC signal). As a result, the DG-2 speed sensing circuitry was altered to accept a 125 VDC power feed. The diesel was satisfactorily tested for operability per applicable sections of ST-ESF-6, F.2 and returned to service 10/20/83.

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ATTACHMENT NO. 3

Failure Data

The failure of the zener diode was the fourth failure of this kind at Fort Calhoun Station Unit No. 1.

The failure of the power supply was the first failure of this kind at Fort Calhoun Station Unit No. 1.

Omaha Public Power District
1623 Harney Omaha, Nebraska 68102
402/536-4000

December 1, 1983
FC-952-83

Mr. J. E. Gagliardo, Director
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& Engineering Programs
U. S. Nuclear Regulatory Commission
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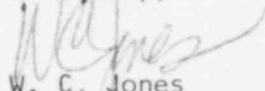


Subject: Fort Calhoun Station Unit No. 1
Docket No. 05000285

Dear Mr. Gagliardo:

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 licensee event report 83-008, Revision 1. This revision depicts changes made to the Corrective Action section (Attachment 2) of the original LER submittal.

Sincerely,



W. C. Jones
Division Manager
Production Operations

WCJ/MRC:jbk

Enclosures

cc: Director, Office of Management
Information and Program Control (3)
Director, Office of Inspection and
Enforcement (30)
Institute of Nuclear Power Operations

SARC Chairman
PRC Chairman
Fort Calhoun File (2)
Mr. Lawrence A. Yandell
NRC Senior Resident Inspector

IE-22
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