

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): NORTH ANNA POWER STATION, UNIT 2
 DOCKET NUMBER (2): 0500003391 OF 04

TITLE (4): BOTH EMERGENCY DIESEL GENERATORS INOPERABLE AT THE SAME TIME

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		DOCKET NUMBER(S)
05	20	88	88	404		01	08	88			050000

OPERATING MODE (9): 1
 POWER LEVEL (10): 100
 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11):
 20.402(b) 20.405(a)(1)(i) 20.405(a)(1)(ii) 20.405(a)(1)(iii) 20.405(a)(1)(iv) 20.405(a)(1)(v)
 20.405(a)(2)(i) 20.405(a)(2)(ii) 20.405(a)(2)(iii) 20.405(a)(2)(iv) 20.405(a)(2)(v) 20.405(a)(2)(vi) 20.405(a)(2)(vii) 20.405(a)(2)(viii) 20.405(a)(2)(ix)

LICENSEE CONTACT FOR THIS LER (12):
 NAME: G. E. Kane, Station Manager
 TELEPHONE NUMBER: 703 894-5151

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC
B	E K	B K R	I O O 5	Y					
B	E K	M O	A 3 6 2	N					

SUPPLEMENTAL REPORT EXPECTED (14): YES (if yes, complete EXPECTED SUBMISSION DATE) NO
 EXPECTED SUBMISSION DATE (15): MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single spaced typewritten lines) (16):
 At 1019 hours on May 20, 1988, with Unit 2 at 100 percent power (Mode 1), it was determined that the 2H Emergency Diesel Generator (EDG) had been inoperable while the 2J EDG was out of service for preplanned maintenance. The 2H EDG was determined to be inoperable when the 2H EDG output breaker failed to close during the performance of an operability test. The breaker failed to close because the closing springs were not charged. The closing springs were not charged because the charging motor became disengaged from the breaker housing when the mounting bolts backed out. This event is reportable pursuant to 10CFR50.73(a)(2)(v).
 As a corrective action, the 2H EDG output breaker was replaced with a spare and satisfactorily tested. Also, the preventative maintenance procedure for 4160 volt breakers has been augmented to require more frequent periodic inspection of the charging motor and verification of the tightness of the charging motor mounting bolts. To prevent recurrence of similar events, the mounting bolts on the 4160 volt breakers charging motors are being inspected and tightened as plant conditions permit.
 Safety consequences of this event were minimized. The 2H EDG was capable of being started and the breaker closing spring could have been manually charged and closed. Also, a spare breaker was readily available. These actions would have allowed the 2H EDG to power the emergency bus if it were required. The health and safety of the general public were not affected at any time during this event.

8809080091 880830
 PDR ADUCK 05000339
 S PDC

IE22 1/1

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) NORTH ANNA POWER STATION, UNIT 2	DOCKET NUMBER (2) 0 5 0 0 0 3 3 9 8 8	LER NUMBER (3)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			0 0 4	0 1	0 2	OF 0 4

TEXT if more space is required, use additional NRC Form 366A's (17)

1.0 Description of Event

At 1019 hours on May 20, 1988, with Unit 2 at 100 percent power (Mode 1), it was determined that both of the Unit 2 Emergency Diesel Generators (EDGs) (EIS System Identifier EK, Component Identifier DG), 2H and 2J, were inoperable from 0603 hours on May 18, 1988 to 2034 hours on May 19, 1988. This event is reportable pursuant to 10CFR50.73(a)(2)(v).

Prior to this event, the 2H EDG output breaker, 25H2, was satisfactorily cycled at 0400 hours on May 6, 1988, during the monthly surveillance required by Technical Specification 3.3.1.1.

At 0603 hours on May 18, 1988, the 2J EDG was taken out of service for preplanned preventative maintenance. At 0100 hours on May 19, 1988, an additional problem was found. The preventative and corrective maintenance were satisfactorily completed, and the 2J EDG was returned to service at 2034 hours on May 19, 1988.

If an EDG becomes inoperable due to any cause other than preplanned preventative maintenance or testing, Technical Specification 3.8.1.1 requires the operability of the remaining operable EDG be demonstrated within 24 hours. As a result, Periodic Test 2-PT-82H was initiated, and the 2H EDG was satisfactorily started at 2055 hours on May 19, 1988. As per 2-PT-82H, the 2H EDG is loaded by closing its output breaker (EIS System Identifier EK, Component Identifier 8KK, Vendor Identifier 1009, Model Number 5HK750), 25H2. At 2116 hours on May 19, 1988, loading of the 2H EDG was attempted, but breaker 25H2 would not close. Investigation revealed that the breaker closing springs were not charged, and the closing spring charging motor (EIS Component Identifier MO, Vendor Identifier A362, Model Number 115489) had become disengaged from the breaker housing as a result of the mounting bolts backing out. Therefore, both Unit 2 EDGs were inoperable during the time the 2J EDG was out of service for maintenance.

2.0 Significant Safety Consequences and Implications

The emergency AC power system is designed to provide power to safety-related equipment for safe shutdown following design basis accidents. The emergency diesel generators must energize the emergency busses and permanently connected loads within 10 seconds following a loss of offsite power. The following actions were taken to minimize the potential safety consequences of the event: (1) two independent offsite power circuits were demonstrated to be operable in accordance with Technical Specification 3.8.1.1, (2) the failed circuit breaker was replaced with a spare breaker and the 2H EDG was started and successfully loaded to the emergency bus by closing the 25H2 breaker.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) NORTH ANNA POWER STATION, UNIT 2	DOCKET NUMBER (2) 0 5 0 0 0 3 3 9	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 8	0 0 4	0 1	0 3	OF	0 4

TEXT (if more space is required, use additional NRC Form 366A) (17)

6.0 Actions to Prevent Recurrence

To prevent recurrence of similar events, the mounting bolts on both units 4160 volt breaker charging motors are being inspected and tightened as plant conditions permit. Based on manufacturers recommendations received after the event, the charging motor mounting bolts will now be tightened until the locking washer becomes compressed.

7.0 Similar Events

Previously, two EDGs have been inoperable on North Anna Unit 2 on December 7, 1984 (LER N2-84-013-00) and on December 9, 1984 (LER-N2-84-011-02) due to high crank case pressure. A similar failure of the charging spring motor occurred on breaker 25H11 on September 21, 1984.

8.0 Additional Information

At the time of the failure, breaker 25H2 had been cycled 638 times. The preventative maintenance procedure for 4160 volt breakers is required every 1000 cycles, based on the vendors requirements. The preventative maintenance procedure has actually been performed on an every third refueling outage frequency with the last performance in the 1986 refueling outage.

Inspections to date have identified several other 4160 volt breakers with loose charging motor mounting bolts. These bolts were tightened as described in section 6.0.

Unit 1 was in Mode 1 during this event and was not adversely affected.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) NORTH ANNA POWER STATION, UNIT 2	DOCKET NUMBER (2) 0 5 0 0 0 3 3 9 8 8	LER NUMBER (5)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 8	0 0 4	0 1	0 4	OF	0 4

TEXT (if more space is required, use additional NRC Form 368A 3/117)

In addition, the 2H EDG was capable of being started and the breaker closing spring could have been manually charged and closed. This would have allowed the 2H EDG to power the emergency bus if it were required. Also, Emergency Operating and Abnormal Procedures for loss of offsite and emergency power sources were available. A local spare breaker was also readily available. The health and safety of the general public were not affected at any time during this event.

3.0 Cause of the Event

Breaker 25H2 failed to close because the closing springs were not charged. The closing springs were not charged because the charging motor became disengaged from the breaker housing when the mounting bolts backed out.

4.0 Immediate Corrective Actions

The 25H2 breaker was replaced with a spare, and the 2H EDG was started and successfully loaded to the emergency bus by closing the 25H2 breaker. Also, all other EDG and 4160 volt output breakers and 4160 volt emergency bus breakers were examined to verify that the breaker closing springs were charged. All breaker closing springs were found to be charged. Technical Specification 3.8.1.1 was complied with at all times.

5.0 Additional Corrective Action

As an additional corrective action, an Operations Stopping Order was implemented which requires that: 1) following operation of a 4160 volt breaker, the closing springs shall be verified charged by observation of the "springs charged" indication in the sliding window on the breaker cubicle, and 2) if the springs are not charged, then the appropriate priority Work Request is to be submitted and the applicable Technical Specification action statement applied. A daily check of safety-related breakers will be performed to verify that their closing springs are charged. This daily check will be performed until both units 4160 volt breaker charging motor mounting bolts have been inspected and tightened. In addition, the Preventative Maintenance procedure for 4160 volt breakers has been augmented to require more frequent periodic inspection of the charging motor and verification of the correct tightness on the charging motor mounting bolts.

Vepco

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION
P. O. BOX 402
MINERAL, VIRGINIA 23117

August 30, 1988

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. N-88-023A
NO/DEQ: nih
Docket No. 50-339

License No. NPF-7

Dear Sirs:

The Virginia Electric and Power Company hereby submits the following updated Licensee Event Report applicable to North Anna Unit 2. This Licensee Event Report has been updated to include the system, component, and vendor identifiers, and the model numbers.

Report No. LER 88-004-01

This report has been reviewed by the Station Nuclear Safety and Operating Committee and will be forwarded to Safety Evaluation and Control for their review.

Very truly yours,


G. E. Kane
Station Manager

Enclosure

cc: U. S. Nuclear Regulatory Commission
101 Marietta Street, N. W.
Suite 2900
Atlanta, Georgia 30323

Mr. J. L. Caldwell
NRC Senior Resident Inspector
North Anna Power Station

IE27
11