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FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power & Light C 05000261
AUTH. NAME AUTHOR AFFILIATION
CROOK, D. Carolina Power & Light Co.
CHAMBERS, R. H. Carolina Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-014-00: on 920709, control power fuses blew in pump breaker closing circuit. Caused by SI pump inoperability. Both control power fuses removed from pump breaker A & replaced w/identical fuses from breaker B. W/920810 ltr.

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TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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| | PD2-1 LA | 1 | 1 | PD2-1 PD | 1 | 1 |
| | MOZAFARI, B | 1 | 1 | | | |
| INTERNAL: | ACNW | 2 | 2 | AEOD/DOA | 1 | 1 |
| | AEOD/DSP/TPAB | 1 | 1 | AEOD/ROAB/DSP | 2 | 2 |
| | NRR/DET/EMEB 7E | 1 | 1 | NRR/DLPQ/LHFB10 | 1 | 1 |
| | NRR/DLPQ/LPEB10 | 1 | 1 | NRR/DOEA/OEAB | 1 | 1 |
| | NRR/DREP/PRPB11 | 2 | 2 | NRR/DST/SELB 8D | 1 | 1 |
| | NRR/DST/SICB8H3 | 1 | 1 | NRR/DST/SPLB8D1 | 1 | 1 |
| | NRR/DST/SRXB 8E | 1 | 1 | REG FILE 02 | 1 | 1 |
| | RES/DSIR/EIB | 1 | 1 | RGN2 FILE 01 | 1 | 1 |
| EXTERNAL: | EG&G BRYCE, J. H | 2 | 2 | L ST LOBBY WARD | 1 | 1 |
| | NRC PDR | 1 | 1 | NSIC MURPHY, G. A | 1 | 1 |
| | NSIC POORE, W. | 1 | 1 | NUDOCS FULL TXT | 1 | 1 |

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RNPD/92-2094
(10CFR50.73)

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
LICENSEE EVENT REPORT NO. 92-014-00

Gentlemen:

The enclosed Licensee Event Report (LER), is submitted in accordance with 10 CFR 50.73 and NUREG 1022, Supplements No. 1 and 2.

Very truly yours,

Roy H. Chambers

R. H. Chambers
General Manager
H. B. Robinson S. E. Plant

RDC:sgk

Enclosure

cc: Mr. S. D. Ebneter
Mr. L. W. Garner
INPO

1700

9208170033 920810
PDR ADOCK 05000261
S PDR

IE22

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

# LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| H. B. ROBINSON UNIT NO. 2 | 05000261 | 1 |

TITLE (4)

## ENTRY INTO TECHNICAL SPECIFICATION 3.0 DUE TO SAFETY INJECTION PUMP INOPERABILITY

| EVENT DATE (5) | | | LER NUMBER (6) | | | | | REPORT DATE (7) | | | OTHER FACILITIES INVOLVED (8) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MONTH | DAY | YEAR | YEAR | | SEQ. NO. | | REV. NO. | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 07 | 09 | 92 | 92 | - | 014 | - | 00 | 08 | 08 | 92 | | 05000 |

| | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| OPERATING MODE (9) | N | | 20.402(b) | | 20.405(c) | | 50.73(a)(2)(iv) | | 73.71(b) |
| POWER LEVEL (10) | 100 | | 20.405(a)(1)(i) | | 50.36(c)(1) | | 50.73(a)(2)(v) | | 73.71(c) |
| | | | 20.405(a)(1)(ii) | | 50.36(c)(2) | | 50.73(a)(2)(vii) | | OTHER (Specify in Abstract and Text) |
| | | | 20.405(a)(1)(iii) | X | 50.73(a)(2)(i) | | 50.73(a)(2)(viii)(A) | | |
| | | | 20.405(a)(1)(iv) | | 50.73(a)(2)(ii) | | 50.73(a)(2)(viii)(B) | | |
| | | | 20.405(a)(1)(v) | | 50.73(a)(2)(iii) | | 50.73(a)(2)(x) | | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER |
|---|---|
| DAVID CROOK, SENIOR SPECIALIST - REGULATORY COMPLIANCE | (803)383-1179 |

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS | | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPRDS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |

| SUPPLEMENTAL REPORT EXPECTED (14) | | | | EXPECTED SUBMISSION DATE (15) | MONTH | DAY | YEAR |
|---|---|---|---|---|---|---|---|
| | YES (If yes, complete EXPECTED SUBMISSION DATE) | X | NO | | | | |


ABSTRACT (Limit to 1400 spaces, i.e. approximately fifteen single space typewritten lines) (16)

On July 9, 1992, H. B. Robinson Unit No. 2 was operating at one hundred percent power. A 24 hour Limiting Condition for Operation (LCO) was in effect in accordance with Technical Specification 3.3.1.2.b for the "B" High Head Safety Injection (SI) Pump due to unscheduled maintenance. At 1839 hours, while starting "A" High Head SI Pump to verify flow measuring equipment operation, one of two control power fuses blew in the pump breaker closing circuit, and licensee operators declared the "A" SI Pump inoperable. Due to the inoperability of all High Head Safety Injection pumps, the action statement for Technical Specification 3.0 was entered.

Both control power fuses were removed from the "A" SI Pump breaker and replaced with identical fuses from the "B" SI Pump breaker. At 2009 hours, after three successful pump starts from the Control Room, the "A" SI Pump was declared operable, and the action statement for Technical Specification 3.0 was exited. Two possible causes have been identified for the fuse failure. Either the fuse failed to withstand its tested, nominal breaker closing current under the fuse's closing curves, or there occurred a current of enough magnitude and duration to blow the fuse during this one closing.

This report is submitted pursuant to 10 CFR 50.73(a)(2)(i)(B).

## I. DESCRIPTION OF EVENT

On July 9, 1992, H. B. Robinson Unit No. 2[1] was operating at one hundred percent power. A 24 hour Limiting Condition for Operation (LCO) was in effect in accordance with Technical Specification 3.3.1.2.b for the "B" High Head Safety Injection (SI) Pump due to unscheduled maintenance.[2] At 1839 hours, while starting "A" High Head SI Pump to verify flow measuring equipment operation, one of two control power fuses blew in the pump breaker closing circuit[3], and licensee operators declared the "A" SI Pump inoperable. Due to the inoperability of all High Head Safety Injection pumps, the action statement for Technical Specification 3.0 was entered. This action requires that, if a Limiting Condition for Operation cannot be satisfied because of circumstances in excess of those addressed in the specification, the unit shall be placed in hot shutdown within eight hours, and in cold shutdown within the next thirty hours, unless corrective measures are taken that permit operation under the permissible Limiting Condition for Operation statements for the specified time interval as measured from initial discovery.

The NRC was notified of the entry into the Technical Specification action statement via the ENS on July 9, 1992, at 1927 hours pursuant to 10 CFR 50.72(b)(1)(ii).

Both control power fuses were removed from the "A" SI Pump breaker and replaced with identical fuses from the "B" SI Pump breaker. At 2009 hours, after three successful pump starts from the Control Room, the "A" SI Pump was declared operable, and the action statement for Technical Specification 3.0 was exited.

## II. CAUSE OF EVENT

Although the root cause of this event cannot be specifically determined, two possible causal factors have been identified. The manufacturer concluded the fuse was progressively weakened by repeated breaker closures until it opened to clear the circuit. Although it is presumed the fuse performed as designed, the first possible cause is a failure of the fuse to withstand the tested and nominal breaker closing currents under the fuse's published curves.

The second possible cause is that a current anomaly occurred with a current of enough magnitude and duration to blow the fuse during this one closing cycle that did not occur during previous or subsequent closings.[4]

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[1]H. B. Robinson Steam Electric Plant Unit No. 2, is a Westinghouse Pressurized Water Reactor in commercial operation since March, 1971.

[2]LER 92-013, Plant Shutdown Due to Safety Injection Pump Inoperability

[3]Westinghouse Type DB-50

[4] EIIS Codes System: BQ; Component: CKTBKR; Manufacturer: W120, B569

III. ANALYSIS OF EVENT

Entry into Technical Specification 3.0 represents a "condition prohibited by the plant's Technical Specifications." Therefore, this LER is submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B).

The safety significance of this condition is considered to be minimal. At the time of this condition, all ECCS systems were operable with the exception of the "B" Safety Injection pump. Due to the relatively short period of time that both pumps were inoperable, the likelihood of a plant transient requiring safety injection during that time period is considered to be negligible. In addition, Function Restoration Procedure FRP-C.1 provides plant operators with actions to restore core cooling available if Safety Injection flow in all trains is not obtained.

IV. CORRECTIVE ACTIONS

An investigation was initiated to determine the cause of the fuse failure.[5] The blown fuse was installed in this circuit on April 18, 1992 under Work Request WR/JO 91-AGNY1, replacing a Bussmann REN-10 fuse. Calculation No. RNP-E-9.005, performed under the H. B. Robinson Fuse Control Program, verified the adequacy of the fuse for this application.

On July 10, 1992, as part of the investigation, licensee engineers recorded the closing circuit current draw during closing of the breaker. The results demonstrated that the recorded value was 11.55 peak amperes during the 156ms closing cycle, which falls within the breaker manufacturer's nominal values. Time-current curves for the control power fuse indicates it could withstand up to 55 amperes for 150ms, which is two and one half times the manufacturers' nominal rating, and five times the measured current draw on the DB-50 closing circuit. Additionally, the fuse can withstand 15 amperes for five minutes, or 20 amperes for 50 seconds. The time-current curves indicate the fuse is adequate for the requirements of the breaker (when compared to the manufacturers nominal time-current values and CP&L tested values) and should be capable of withstanding repeated closing operations. This fuse is presently being used in DB-50 closing circuits at H. B. Robinson and there have been no other reported incidents of failure.

The blown fuse was returned to the manufacturer for inspection. Based on the manufacturer's analysis of the fuse, information was provided that the fuse opened under load, and that there was no apparent evidence of any defect within the fuse. Therefore it is presumed the fuse performed as designed. The manufacturer concluded the fuse was progressively weakened by repeated breaker closures until it opened to clear the circuit.

Work request WR/JO 92-ALHY1 has been initiated to inspect the breaker to determine if any function of the closing operation of the breaker could have caused a condition of excess current draw sufficient to blow the 10 ampere fuse, and to perform any necessary maintenance to correct such a condition.

The fuse manufacturer has recommended to use a LPN-RK fuse in DB-50 breaker closing circuits. This recommendation has been entered into the H. B. Robinson Technical Manual/Vendor Recommendation program under tracking number 92-0140 where it will be appropriately evaluated through the Fuse Control Program as a possible alternate fuse selection.

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[5] Adverse Condition Report 92-277

V. ADDITIONAL INFORMATION

A. Component Failures

None

B. Previous Similar Events

None