NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

# LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| Turkey Point Unit 3 | 0 5 0 0 0 2 5 0 | 1 OF 0 3 |

TITLE (4)
Reactor Protection System Actuation - Reactor Trip

| 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) |
| | | | | | | | | | | | N/A | 0 5 0 0 0 |
| 1 0 | 1 5 | 8 5 | 8 5 | — | 0 3 2 | — | 0 0 | 1 1 | 1 3 | 8 5 | N/A | 0 5 0 0 0 |

| OPERATING MODE (9) | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 20.402(b) | | 20.405(c) | X | 50.73(a)(2)(iv) | | 73.71(b) | | | | |
| POWER LEVEL (10) | 1 0 0 | | 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 below and in Text, NRC Form 366A) | | | | |
| | | | 20.405(a)(1)(iii) | | 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 |
|---|---|
| | AREA CODE |
| Randall D. Hart, Licensing Engineer | 3 0 5 2 4 5 - 2 9 1 0 |

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)


**Event:** On October 15, 1985, while Unit 3 was at 100% power, a reactor trip occurred. A main transformer differential relay actuated resulting in an electrical generator trip. The generator trip caused a turbine trip which initiated a reactor trip. This trip resulted in steam generator (SG) levels decreasing below the low-low level setpoint, 15% of the narrow range span, due to SG shrink. This resulted in an automatic initiation of the auxiliary feedwater (AFW) system. Upon stabilization of SG levels, the AFW system was secured. Approximately a half an hour after the reactor trip, leakage past the "B" SG bypass feedwater flow control valve (FCV-3-489) resulted in the SG level increasing until it reached the high level setpoint (80%). This tripped the "A" SG feedwater pump and with the "B" SG feedwater pump not operating at the time completed the SG protection logic and the AFW system automatically actuated. One hour after the reactor trip, a unit cooldown from hot standby to hot shutdown was commenced and subsequently completed in compliance with Technical Specification (TS) 3.8.4.b due to the "C" AFW pump being out of service for maintenance.

**Cause of Event:** The main transformer differential relays were inspected and no problems were found. At the time of this incident, construction personnel were working on Appendix R modifications in the vicinity of the relays. The most probable cause of the relay actuation appears to be an accidental jarring of these relays by construction personnel.

**Corrective Action:**

1) The main transformer differential relays were inspected and no problems were found. A sample of the main transformer oil was analyzed and no problems were found. The Sangamo (fault monitor) tapes were reviewed and no faults were found.
2) The "C" AFW pump was satisfactorily tested and placed back in service. Upon completion of the post trip review, and necessary maintenance, the unit was placed on line at 0638 on October 17, 1985 and reached 100% full power at 1225 the same day.
3) An operator aide tag was placed on FCV-3-489 until such time as the valve could be inspected and repaired. The valve was subsequently inspected and repaired on October 26, 1985.




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☆ U.S.GPO:1984-0-454-481/18759

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

**Event:**

On October 15, 1985, at 1202, while Unit 3 was at 100% power, a reactor trip occurred. At 1202, the main transformer differential relays actuated resulting in an electrical generator trip. The generator trip caused a turbine trip which initiated a reactor trip. While verifying the reactor trip per off-normal operating procedure (ONOP) 0208.1, "Shutdown Resulting from Reactor Trip or Turbine Trip", it was discovered that 2 rod position indication (RPI) rod bottom lights were not illuminated. A manual reactor trip and emergency boration were initiated at 1203 as per ONOP 0208.1. Emergency boration was terminated upon discovery of defective bulbs in the RPI rod bottom lights and verification of rods on bottom. The bulbs were replaced. This trip resulted in steam generator (SG) levels decreasing below the low-low level setpoint, 15% of the narrow range span, due to SG shrink. This resulted in an automatic initiation of the auxiliary feedwater (AFW) system at 1203. Once SG levels were stabilized, the AFW system was secured at 1210 as per operating procedure 3-OP-075, "Auxiliary Feedwater System". At 1220, the main steam isolation valves (MSIVs) were closed to help reduce the cooldown.

At 1239, another automatic initiation of the AFW system occurred. While recovering from the reactor trip, leakage past the "B" SG bypass feedwater control valve (FCV-3-489) resulted in the SG level increasing until it reached the high level setpoint (80%). This tripped the "A" SG feedwater pump and with the "B" SG feedwater pump not operating at the time completed the SG protection logic and the AFW system automatically started. At 1250, the 3A SG feedwater pump was started to establish a normal feedwater train and allow for the securing of the AFW system.

At 1300, a reactor coolant system (RCS) cooldown from hot standby to hot shutdown was commenced in compliance with Technical Specification (TS) 3.8.4.b. At the time of the reactor trip, the "C" AFW pump was out of service for maintenance. TS 3.8.4.b requires two independent AFW trains and a third AFW pump to be operable whenever both units are above hot shutdown. Therefore, a cooldown was initiated and completed at 1853 when the unit was placed in hot shutdown.

**Cause of Event:**

The main transformer differential relays were inspected and no problems were found. At the time of this incident, construction personnel were working on Appendix R modifications in the vicinity of the relays. The most probable cause of the relay actuation appears to be an accidental jarring of these relays by construction personnel.

**Analysis of Event:**

A post trip review was performed to assess the proper operation of safety-related equipment. During both AFW system actuations, the pumps that were inservice operated as designed to supply the required amount of feedwater to maintain SG levels and remove residual heat. Similarly, the post-trip review established that the transient behavior of pertinent plant parameters for the RCS and SGs responded as expected of a reactor trip of this kind. Specifically, the RCS pressures and temperatures were determined to be following an expected pattern based on the conditions leading up to this transient. Based on the above, the health and safety of the public were not affected.

**Corrective Action:**

1) The main transformer differential relays were inspected and no problems were found. A sample of the main transformer oil was analyzed and no problems were found. The Sangamo (fault monitor) tapes were reviewed and no faults were found.
2) The "C" AFW pump was satisfactorily tested and placed back in service. Upon completion of the post trip review, and any necessary maintenance, the unit was placed on line at 0638 on October 17, 1985 and reached 100% full power at 1225 the same day.
3) In the interim until FCV-3-489 could be repaired, an operator aide tag was placed on the control room console advising that closure/throttling of the manual isolation valve may be required whenever controlling the feedwater flow to the "B" SG with FCV-3-489.

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

**Corrective Action:** (continued)

4) Following a Unit 3 shutdown for secondary system maintenance, feedwater control valves (FCV-3-479, FCV-3-489, and FCV-3-499) were checked to insure proper seating and their actuators calibrated. In addition, FCV-3-489 and FCV-3-499 were cleaned and inspected. Their cage, stem, and plug assemblies and gasket bonnet were replaced. The valves were repacked and returned to service.

5) A meeting was held with personnel from System Protection, Operations Department, FPL Construction, and Bechtel Corporation to discuss concerns about working in sensitive areas of the Cable Spreading Room. A list of guidelines was developed to provide increased control of work to be performed in these areas. These guidelines will be implemented prior to commencing further work in these areas.

**Additional Details:**

FCV-3-489 is a 4 inch Copes Vulcan globe valve, serial number 6810-67005-17-2. Before the construction personnel began their work in the Cable Spreading Room, the room supervisor discussed the importance of not jarring the sensitive relays located in the work area.

Similar Occurrences: None

P.O. BOX 029100 MIAMI, FL 33102


FLORIDA POWER & LIGHT COMPANY

NOV 1 3 1985

L-85-435

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

Gentlemen:

Re: Reportable Event 85-32
Turkey Point Unit 3
Date of Event: October 15, 1985
Reactor Protection System Actuation-Reactor Trip

The attached Licensee Event Report is being submitted pursuant to the requirements of 10 CFR to provide notification of the subject event.

Very truly yours,

for J. W. Williams, Jr.
Group Vice President
Nuclear Energy

JWW/PLP:mls

Attachment

cc: Dr. J. Nelson Grace
Region II, USNRC
Harold F. Reis, Esquire

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