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 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
 AUTH. NAME AUTHOR AFFILIATION
 POWELL, D.R. Florida Power & Light Co.
 PLUNKETT, T.F. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-011-00: on 911011, Appendix R Safe Shutdown Analysis design inadequacy identified due to failure to recognize potential for spurious actuation of auxiliary relay. Manual Action List in Safe Shutdown Analysis revised. W/911218 ltr.

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10 CFR 50.73

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

Gentlemen:

Re: Turkey Point Units 3
Docket No. 50-250
Reportable Event: 91-011-00
Date of Event: October 11, 1991
10 CFR 50 Appendix R Safe Shutdown Analysis Design Inadequacy

The attached Licensee Event Report 250-91-011-00 is being provided in accordance with the requirements of 10 CFR 50.73(a)(2)(ii) to provide notification of the subject event.

Very truly yours,

T. F. Plunkett
Vice President
Turkey Point Nuclear

TFP/CLM/clm

Attachment

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC

Senior Resident Inspector, USNRC, Turkey Point Plant

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PDR ADOCK 05000250
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) TURKEY POINT UNIT 3										DOCKET NUMBER (2) 05000250		PAGE (3) 1 OF 4	
TITLE (4) 10 CFR 50 Appendix R Safe Shutdown Analysis Design Inadequacy													
EVENT DATE (5)			LER NUMBER (6)			RPT DATE (7)			OTHER FACILITIES INV. (8)				
MON	DAY	YR	YR	+ SEQ #	R#	MON	DAY	YR	FACILITY NAMES			DOCKET # (S)	
10	11	91	91	011	00	12	18	91	TURKEY POINT UNIT 4			05000251	
OPERATING MODE (9)		10 CFR 50.73(a)(2)(ii)											
POWER LEVEL (10)		45											
LICENSEE CONTACT FOR THIS LER (12)													
David R. Powell, Licensing Superintendent										TELEPHONE NUMBER 305-246-6559			
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CAUSE	SYSTEM	COMPONENT	MANUFACTURER			NPRDS?	CAUSE	SYSTEM	COMPONENT	MANUFACTURER			NPRDS?
SUPPLEMENTAL REPORT EXPECTED (14) NO <input checked="" type="checkbox"/> YES <input type="checkbox"/>								EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR	
(if yes, complete EXPECTED SUBMISSION DATE)													
ABSTRACT (16)													
<p>On October 11, 1991, at 0700 EDT, Florida Power and Light identified an Appendix R Safe Shutdown Analysis design inadequacy at Turkey Point. Originally considered not reportable, further review resulted in the decision to report the condition as one not covered by procedures. As described in the Turkey Point Appendix R Alternate Shutdown analysis, our design and procedures are required to be able to shut down the plant for a fire which may occur in the control room or the cable spreading room. Additionally, a loss of offsite power is assumed to occur. The procedure for control room evacuation directs the removal of power from the safeguards relay racks, but this action may not prevent a spurious short from occurring on the output side of a safeguards relay. The resulting spurious actuation of a safeguards auxiliary relay, coupled with disabling of the Emergency Diesel Generator (EDG) load sequencer, will result in tripping of the EDG output breaker. This scenario applies to the 3B and the 4B EDGs. The Manual Action List in the Safe Shutdown Analysis, and the Off-Normal Operating Procedure for control room evacuation, have both been revised to require the removal of fuses which will prevent the spurious actuation of the auxiliary relay.</p>													

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I. EVENT DESCRIPTION

On October 11, 1991, at 0700 EDT, with Unit 3 in Mode 1 at 45 percent power and Unit 4 in Mode 6 (Refueling), a system engineer (non-licensed utility personnel) identified a potential design inadequacy with the Turkey Point 10 CFR 50 Appendix R Safe Shutdown analysis. A Nonconformance Report (NCR) was generated to determine if the postulated spurious scenario was valid, and, if so, what corrective actions were necessary. Two suggested corrective actions were offered; one hardware modification, and one procedure enhancement.

The NCR disposition stated that the postulated scenario was valid, and provided two corrective actions, both procedural. The corrective actions were implemented by the time the NCR disposition was approved. In addition, the disposition stated that there was no plant operability concern resulting from the NCR. On that basis, the condition was originally deemed to be not reportable:

In response to concerns raised by the resident inspector, the 10 CFR 50 Appendix R requirements, the Turkey Point Safe Shutdown Analysis, and the facility Upgraded Final Safety Analysis Report were further examined. On November 21, 1991, at 1438, the condition was determined to be one not covered by the plant's operating and emergency procedures at the time the NCR was generated, and therefore reportable under 10 CFR 50.72(b)(1), and under 10 CFR 50.73(a)(2).

10 CFR 50 Appendix R Alternate Shutdown criteria require that design and procedures be able to shut down the plant, for a fire which may occur in the control room. Additionally, a loss of offsite power is assumed to occur.

The following discussion describes the relays and components for Unit 3 Train B. The scenario described also applies to Unit 4 Train B. The B Trains are the "protected" trains for the Appendix R Safe Shutdown analysis.

According to Turkey Point's current Safe Shutdown Analysis, circuit 3E24Z is protected by removing power from the Safeguards [JE] relay [RLY] racks. This is reflected in procedure 0-ONOP-105, Control Room Evacuation, in Attachment 7, Step 6.

This action will not prevent a possible spurious actuation from occurring on the output side of the safeguards relays. One of these relays (95Z4/3A) is associated with the 3B EDG. A spurious short of relay SI23X contacts 2-6 will result in actuation of relay 95Z4/3A. This relay actuation, coupled with disabling of the EDG load sequencer per 0-ONOP-105, will result in tripping of the 3B EDG output breaker [52].

The condition was reported pursuant to 10 CFR 50.72(b)(1)(ii) at 1530 on November 21, 1991.



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II. EVENT CAUSE

The cause of this condition was design inadequacy. The Appendix R Safe Shutdown Analysis design review for Plant Change/Modification 87-264 failed to recognize the potential for this possible spurious scenario; therefore, mitigating manual actions were not included in the Safe Shutdown Analysis Manual Action List.

III. EVENT SAFETY ANALYSIS

The EDG output breaker circuitry has been designed to trip the breaker upon receipt of a Safety Injection (SI) signal. If an SI signal is received while the EDG is responding to a Loss of Offsite Power (LOOP), or during periodic testing with the EDG paralleled to the grid, the EDG output breaker trips automatically, without tripping the EDG. The objective of this feature is to re-strip the busses and allow loading of the Safeguards equipment, for the "LOOP followed by SI" event, and to separate the EDG from the grid, for the "parallel testing followed by SI" event.

Although the postulated scenario is a valid spurious actuation scenario, there are at least two concurrent events required to trip the EDG output breaker; (1) fire in the control room safeguards rack, and (2) failure of the 12 conductor cable 3E24Z/B 3C23B-3QR45 by shorting conductors 1 and P1. The probability of this scenario exists only during an Alternate Shutdown condition, and even then is considered highly unlikely.

The design basis for this Appendix R fire scenario renders the EDG output breaker unusable; however, the design basis also allows the use of manual action to achieve and maintain hot standby conditions. Any of several manual actions, such as removal of the fuses on the trip portion of the EDG breaker circuit, tripping of the SI auxiliary relays breaker, or removal of the fuses that power the SI auxiliary relays, would allow closure of the EDG output breaker. Since the postulated scenario would result in obvious symptoms, e.g., loss of lighting, operators would be reasonably expected to recognize the symptoms and take manual actions. In addition, the control room is manned around the clock, and fire extinguishers are available in the control room. These mitigating factors provide added insurance against the postulated scenario. Thus the health and safety of the public was not materially affected.

Nevertheless, the choice of action is important, and therefore the optimum corrective action warrants inclusion in the control room evacuation procedure. Removal of the fuses that power the SI auxiliary relays, including 95Z4/3A, does not affect any equipment or functions that are required for Alternate Shutdown, and hence is considered the optimum manual action.

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IV. CORRECTIVE ACTIONS

1. Procedure 0-ONOP-105 was revised with an On The Spot Change (OTSC) on October 11, 1991, to include steps to remove fuses FU-1(+) and FU-1(-), thereby de-energizing the SI auxiliary relays during control room evacuation. The OTSC was reviewed and approved by the Plant Nuclear Safety Committee on October 15, 1991.
2. Change Request Notice CRN-M-5490 was issued to correct the Appendix R Safe Shutdown Analysis Manual Action List by adding steps to pull fuses FU-1(+) and FU-1(-). The CRN was approved on October 11, 1991.
3. The feeder cable routing to the SI auxiliary relays has also been reviewed to verify that other possible cable to cable failures will not result in the energization of the SI auxiliary relays.

V. ADDITIONAL INFORMATION

Licensee Event Report 50-250/89-09 described another Appendix R design inadequacy involving the operation of valves supplying water to the suction of the charging pumps.

