

CATEGORY 1

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ACCESSION NBR: 9605030192 DOC. DATE: 96/04/29 NOTARIZED: NO DOCKET #
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 96-007-00: on 960329, inadvertent ESF actuation occurred during refueling outage due to cognitive personnel error. Personnel involved counseled & integrated safeguards test procedures being revised. W/960429 ltr.

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L-96-106

10 CFR 50.73

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

Gentlemen:

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250, 50-251
Reportable Event: 96-007
Inadvertent Engineered Safety Features Actuation During
Refueling Outage

The attached Licensee Event Report 250/96-007 is being
provided in accordance with 10 CFR 50.73(a)(2)(iv).

If there are any questions, please contact us.

Very truly yours,

R. J. Hovey
Vice President
Turkey Point Plant

CLM

attachment

cc: Stewart D. Ebnetter, Regional Administrator, Region II,
USNRC
Thomas P. Johnson, Senior Resident Inspector, Turkey
Point Plant, USNRC

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PDR ADDCK 05000250
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)

TURKEY POINT UNITS 3 & 4

DOCKET NUMBER (2)

05000250

PAGE (3)

1 OF 4

TITLE (4)

Inadvertent Engineered Safety Features Actuation During Refueling Outage

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)
03	29	96	96	007	00	04	29	96	Turkey Point Unit 4	05000251

OPERATING MODE (9)

1/5

POWER LEVEL (10)

100/0

10 CFR 50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER (12)

C. L. Mowrey, Compliance Specialist

TELEPHONE NUMBER

305-246-6204

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	NPRDS?	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	NPRDS?

SUPPLEMENTAL REPORT EXPECTED (14)

NO ☒

YES ☐

EXPECTED
SUBMISSION
DATE (15)

MONTH

DAY

YEAR

(if yes, complete EXPECTED SUBMISSION DATE)

ABSTRACT (16)

Test equipment was being installed in preparation for an integrated safeguards test on Florida Power & Light Company's Turkey Point Unit 4. Test potentiometers were installed that simulated a pressurizer pressure of greater than 2000 psig. This action released a Safety Injection block signal, while another Safety Injection signal was present. As a result, all available Engineered Safety Features equipment actuated, including all four Emergency Diesel Generators (two per unit), and the three high head Safety Injection pumps which were in service (3A, 3B, 4B). Because this event affected both units, it is being reported under docket 05000250.

The cause of the event was cognitive personnel error; the test procedure required a simulated pressure of 1900 psig on each channel, which would not have unblocked the Safety Injection signal.

Personnel involved have been counseled. The integrated safeguards test procedures are being revised to provide additional barriers against this type of event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME NO.	DOCKET NUMBER	LER NUMBER	PAGE
TURKEY POINT UNITS 3 & 4	05000250/251	96-007-00	2 OF 4

I. DESCRIPTION OF THE EVENT

On March 29, 1996, Florida Power & Light Company's (FPL) Turkey Point Unit 4 was in Mode 5 nearing the end of a refueling outage. Preparations were in progress for an integrated safeguards test, which involves starting each train of Engineered Safety Features (ESF) equipment from a simulated Safety Injection (SI) signal [JE]. In order to perform the test, all actual SI signals must be defeated or bypassed, thereby allowing ESF equipment to respond to the simulated signal.

One of the SI actuation signals is low pressurizer [AB:pzr] pressure (two of three channels below 1730 psig). In Mode 5, with the Reactor Coolant System [AB] depressurized, this SI signal is present, but it can be manually blocked when two out of three pressurizer pressure channels are below 2000 psig. The blocking logic also blocks the high steamline differential pressure SI signal (also present when in Mode 5). When pressure on two of three channels is above 2000 psig, the SI signals are automatically unblocked.

Pretest preparations direct that simulated 1900 psig signals be applied to all three channels. This simulated pressure is high enough to clear the low pressure SI signal, but not high enough to automatically unblock the high steamline differential pressure SI signal. In the event, Maintenance Instrumentation and Control (I&C) personnel installed the test potentiometers with pressure signals preset at greater than 2000 psig, rather than at 1900 psig. When the test potentiometer was installed on the second channel preset at greater than 2000 psig, the SI signals were automatically unblocked. With a high steamline differential pressure SI signal still present, an ESF actuation occurred.

The signal initiated the start of the four Emergency Diesel Generators [EK:dg], and all three of the High Head SI pumps [BQ:p] (3A, 3B, and 4B) which were operable and aligned for service. All other equipment, which was not out of service in accordance with procedures in effect at the time, started as designed except for the 4C Emergency Containment Cooler outlet isolation valve CV-4-2908 [BK:isv], which had dual indication. An investigation determined that the valve had properly repositioned, but a position indication limit switch was improperly adjusted, resulting in the dual indication.

This inadvertent ESF actuation is being reported in accordance with 10 CFR 50.73(a)(2)(iv). Because this event affected both units, it is being reported under docket 05000250.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME NO.	DOCKET NUMBER	LER NUMBER	PAGE
TURKEY POINT UNITS 3 & 4	05000250/251	96-007-00	3 OF 4

II. CAUSE OF THE EVENT

The immediate cause of the ESF actuation was unblocking SI signals with an SI initiation signal present.

The intermediate cause was cognitive personnel error on the part of non-licensed utility personnel, in that they failed to follow an approved procedure. The procedure required simulated signals of 1900 psig; the simulated signals were set at greater than 2000 psig.

Root causes were a combination of instructional presentation deficiencies within the procedure, and a predisposition to believe that the procedure was adequate. These are discussed below.

The procedure cautions to perform simulations one channel at a time to avoid resetting the SI block signal. The procedure also lists the steps for installing each potentiometer, including a step to adjust each potentiometer to 1900 psig after installation. However, the steps for installing and adjusting the potentiometers are organized in the format of an independent verification sheet rather than procedural signoff steps. This method of procedural organization is typical of Operations procedures, but is in contrast to most Maintenance procedures which have specific performance steps and separate independent verification sheets. Additionally, there is no procedural guidance to verify the potentiometer settings prior to installation.

The preparation section of the procedure had been started on the previous shift, and several other preparation steps had been performed out of sequence. The success of these earlier steps, combined with the format of the procedure, predisposed the personnel to believe that successful performance did not require the substeps to be performed in sequence.

The combined result of these factors was that two potentiometers were installed, both with settings greater than 2000 psig, before either potentiometer was adjusted to 1900 psig.

III. ANALYSIS OF THE EVENT

Licensing Requirements

The licensing basis at Turkey Point assumes the initiation of an ESF actuation if any one of a number of set points is reached. During preparation for the integrated safeguards test, the block relay is required to be in the block position to prevent an SI signal from reaching the logics.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME NO.	DOCKET NUMBER	LER NUMBER	PAGE
TURKEY POINT UNITS 3 & 4	05000250/251	96-007-00	4 OF 4

Analysis of Effects on Safety

Unit 4 was in Mode 5 at the time of the SI signal generation and Unit 3 was in Mode 1. Although this event constitutes an unnecessary challenge to ESF equipment, and is therefore reportable, all systems in service at the time operated as expected. Given the above assessment, the health and safety of the plant personnel and general public were not compromised.

IV. CORRECTIVE ACTIONS

1. Plant response to the SI signal was verified to be as expected, using the emergency operating procedures.
2. Preparations for the integrated safeguards test were stopped until the cause of the SI signal was known and corrected.
3. The I&C personnel involved were counseled by plant management. The incident was discussed with all I&C supervisors, and at shop meetings with personnel on each shift.
4. The integrated safeguards test procedures will be revised to provide additional barriers to this type of event, prior to the next refueling outage on each unit. In particular, the test preparation appendices performed by Maintenance personnel will be revised to a format consistent with Maintenance procedures.
5. Other Operations procedures involving performance by Maintenance personnel will be reviewed to determine if there are similar vulnerabilities created by formatting differences.
6. The position indication for valve CV-4-2908 was repaired.

V. ADDITIONAL INFORMATION

EIIS Codes are shown in the format [EIIS SYSTEM: IEEE component function identifier, second component function identifier (if appropriate)].

LER 250/94-002 reported an inadvertent ESF actuation while re-energizing the safeguards racks. That event was due to a failed relay.