

# REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8802010153 DOC. DATE: 88/01/22 NOTARIZED: NO DOCKET #  
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C 05000250  
 AUTH. NAME AUTHOR AFFILIATION  
 HART, R. D. Florida Power & Light Co.  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-033-00: on 871225, during controlled shutdown, reactor tripped when source range high neutron flux trip unblocked & detector out of svc w/o bypassing trip signal. Caused by inadequate procedure. Procedures changed: W/8880122ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

## NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL		RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD2-2 LA	1 1		PD2-2 PD	1 1
	McDONALD, D	1 1			
INTERNAL:	ACRS MICHELSON	1 1		ACRS MOELLER	2 2
	AEOD/DOA	1 1		AEOD/DSP/NAS	1 1
	AEOD/DSP/ROAB	2 2		AEOD/DSP/TPAB	1 1
	ARM/DCTS/DAB	1 1		DEDRO	1 1
	NRR/DEST/ADS	1 0		NRR/DEST/CEB	1 1
	NRR/DEST/ELB	1 1		NRR/DEST/ICSB	1 1
	NRR/DEST/MEB	1 1		NRR/DEST/MTB	1 1
	NRR/DEST/PSB	1 1		NRR/DEST/RSB	1 1
	NRR/DEST/SGB	1 1		NRR/DLPQ/HFB	1 1
	NRR/DLPQ/QAB	1 1		NRR/DOEA/EAB	1 1
	NRR/DREP/RAB	1 1		NRR/DREP/RPB	2 2
	NRR/DRIS/SIB	1 1		NRR/PMAS/ILRB	1 1
	<u>REG FILE</u> 02	1 1		RES TELFORD, J	1 1
	RES/DE/EIB	1 1		RES/DRPS DIR	1 1
	RGN2 FILE 01	1 1			
EXTERNAL:	EG&G GROH, M	5 5		FORD BLDG HOY, A	1 1
	H ST LOBBY WARD	1 1		LPDR	1 1
	NRC PDR	1 1		NSIC HARRIS, J	1 1
	NSIC MAYS, G	1 1			

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Turkey Point Unit 3</b>										DOCKET NUMBER (2) <b>0 5 0 0 0 2 5 6</b>										PAGE (3) <b>1 OF 3</b>																							
TITLE (4) <b>Reactor Trip During Controlled Shutdown When Source Range High Neutron Flux Trip Unblocked and a Detector Out of Service Without Bypassing the Trip Signal</b>																																											
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	2	5	8	7	8	7	0	3	3	0	0	0	1	2	2	8	8	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)																																									
3		20.402(b)										20.405(c)										Y 50.73(a)(2)(iv)										73.71(b)											
POWER LEVEL (10)		01 01 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)(vi)										OTHER (Specify in Abstract below and in Text, NRC Form 356A)											
		20.405(a)(1)(iii)										50.73(a)(2)(ii)										50.73(a)(2)(vii)(A)																					
		20.405(a)(1)(iv)										50.73(a)(2)(iii)										50.73(a)(2)(viii)(B)																					
		20.405(a)(1)(v)										50.73(a)(2)(iii)										50.73(a)(2)(ix)																					
LICENSEE CONTACT FOR THIS LER (12)																																											
NAME																TELEPHONE NUMBER																											
Randall D. Hart, Licensing Engineer																AREA CODE						3 1 0 1 5 2 1 4 1 6 1 - 1 6 1 5 1 5 9																					
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																											
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPDs																																	
X	IIG	JIX	W	1 2 0	Y																																						
X	AIB	PIC IV	C	1 6 1 3 1 5	Y																																						
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 December 25, 1987, Unit 3 experienced a subcritical reactor trip. Unit 3 was in the process of a controlled shutdown due to pressurizer pressure control problems. The unit was taken off the line and the operators proceeded to fully insert the control rods. When the indication on both intermediate range detectors decreased to below 10 E-10 amps, the source range detectors (N-31 and N-32) energized and began indicating in counts per second (cps). N-31 had been taken out of service for a previous failure and the instrument fuses in the drawer had been removed, but the level trip bypass switch had been left in normal position. This places the channel in the tripped condition and locks in the input to the reactor trip logic. Therefore, when the source range detectors reenergized, the reactor trip logic for a source range high flux reactor trip at shutdown was fulfilled. The reactor trip occurred as designed and the unit was stabilized in mode 3 (hot standby). A contributing factor was that the off normal operating procedure did not address the failure of a source range detector in mode 1 (power operation). Appropriate procedure changes will be made and a post trip review was performed to assure proper operation of safety related equipment. Upon completion of the post trip review and appropriate maintenance, the unit was returned to service on December 27, 1987.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Turkey Point Unit 3	05100250	87	033	00	02	OF	03

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

EVENT:

On December 25, 1987, Unit 3 experienced a reactor trip from subcritical conditions. At 0210 on December 25, 1987, the reactor control operator (RCO) on Unit 3 noticed that pressurizer pressure was gradually decreasing with pressurizer heaters on full output and the pressurizer spray valves closed. Off normal operating procedure (ONOP) 4-ONOP-041.5, Pressurizer Pressure Control Malfunction, was entered in an attempt to control pressurizer pressure. At 0240, the requirements of 4-ONOP-041.5 were completed and with pressurizer pressure still decreasing, the Plant Supervisor-Nuclear (PSN) commenced a unit shutdown. The unit shutdown was stopped at 0315 when pressurizer pressure control was regained. At 0400 an event response team (ERT) was activated to assist in determining root cause and provide corrective actions. At 1430, plant management decided to shutdown Unit 3 to facilitate trouble shooting the pressurizer pressure control problem. At 1438, the unit was taken off the line and the RCO proceeded to fully insert the control rods. When the indication on both intermediate range detectors decreased to below 10 E-10 amps, the source range detectors (N-31 and N-32) energized and began indicating in counts per second (cps). N-31 had previously been taken out of service for a failure and the instrument fuses in the drawer had been removed, but the level trip bypass switch had been left in the normal position. This places the channel in the tripped condition and locks in the input to the reactor trip logic. Therefore, when the source range detectors energized, the reactor trip logic for a source range high flux reactor trip at shutdown was fulfilled. A reactor trip occurred, as designed, and the unit was stabilized in hot standby.

CAUSE OF EVENT:

On December 22, 1987, N-31 spuriously energized above the P-6 setpoint (both intermediate range detectors indicating greater than 10 E-10 amps) and pegged high. The current off normal operating procedure (ONOP) 3(4)-ONOP-059.3, Nuclear Instrumentation Malfunction, did not provide guidance for taking a source range detector out of service when the unit is in power operation (mode 1). N-31 was taken out of service on an in-plant equipment clearance order by removing the instrument fuses on the drawer for N-31. This places the channel in the tripped condition and locks in the input to the reactor trip signal. However, the level trip bypass switch was left in normal and not placed in bypass. This makes up the logic for a source range high flux reactor trip at shutdown. So when the reactor was shutdown and the source range detectors unblocked, a reactor trip signal was generated.

The problem with N-31 reenergizing above the P-6 setpoint is due to a problem with the high voltage circuitry (solid state type). The vendor for the source range instruments is currently working on a modification to replace the solid state circuitry with a relay type.

An investigation into the decreasing pressurizer pressure revealed that the spring bench setting was low for pressurizer spray valve PCV-3-455A. This resulted in the valve not closing completely. The spring bench setting was properly set and the valve functioned properly.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Turkey Point Unit 3	0 5 0 0 0 2 5 0 8 7	-	0 3 3	-	0 0 0 3	OF 0 3

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

ANALYSIS OF EVENT:

At the time of the event, Unit 3 was in mode 3 with control rod banks A, B, C, and D inserted and shutdown bank A partially inserted. When the reactor trip signal was generated, the reactor trip breakers opened and shutdown banks A and B inserted into the core as designed. A post trip review was performed to assess the proper operation of safety-related equipment. The post trip review established that the transient behavior of pertinent plant parameters for the reactor coolant system and steam generators responded as expected for a reactor trip of this kind. Based on the above, the health and safety of the public were not affected.

CORRECTIVE ACTIONS:

- 1) The vendor of the source range detectors is currently working on a modification to replace the solid state circuitry for the high voltage cutout circuitry. Upon receipt of the modification package and appropriate materials the problem will be repaired.
- 2) Operating surveillance procedure (OSP) 3-OSP-059.1, Source Range Nuclear Instrumentation Analog Operational Test, was performed to verify operability of N-31 prior to restart of Unit 3.
- 3) Pressure control valve (PCV) PCV-3-455A was repaired, satisfactorily tested and placed back in service.
- 4) Off normal operating procedure (ONOP) 3-ONOP-059.3, Nuclear Instrumentation Malfunction, will be replaced by separate procedures that will address each portion of the nuclear instrumentation system (NIS). Each procedure will provide guidance to the operators on what actions to take when a NIS channel malfunctions in each mode.
- 5) Upon completion of the post trip review and scheduled maintenance activities, the unit was placed on the line at 0535 on December 27, 1987.
- 6) This event will be reviewed by the Training Department to determine if additional training is warranted.

ADDITIONAL DETAILS:

The source range detectors are Westinghouse model WL-23706 proportional counters.

PCV-3-455A is a Copes-Vulcan Model D-100-160-2 1/2 inch valve.

Similar Occurrences: LERs 250-84-040, 250-84-021, 251-84-014, 251-84-023, and 250-87-022 reported events where a subcritical reactor trip occurred due to source range high flux reactor trip signal but they did not have the same root cause as this LER.

**FPL**

JANUARY 22 1988

L-88-35  
10 CFR 50.73

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

Gentlemen:

Re: Turkey Point Unit 3  
Docket No. 50-250  
Reportable Event: 87-33  
Date of Event: December 25, 1987  
Reactor Trip During Controlled Shutdown When  
Source Range High Neutron Flux Trip Unblocked and a  
Detector Out of Service Without Bypassing the Trip

The attached Licensee Event Report (LER) is being submitted pursuant to the requirements of 10 CFR 50.73 to provide notification of the subject event.

Very truly yours,

  
C. O. Woody  
Executive Vice President

COW/SDF/gp

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator,  
Region II, USNRC  
Senior Resident Inspector, USNRC, Turkey Point Plant

SDF/018.LER

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