

# REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8710050147 DOC. DATE: 87/08/11 NOTARIZED: NO DOCKET #  
 FACIL: 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251  
 AUTH. NAME AUTHOR AFFILIATION  
 WAGER, V. Florida Power & Light Co.  
 WOODY, C. O. Florida Power & Light Co.  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-018-01: on 870711, operation in excess of 24 h w/  
 greater than 2% calculated quadrant power tilt ratio w/o  
 running flux map or reducing overpressure, overtemp occurred.  
 Caused by personnel error. Procedure updated. W/870925 ltr.

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
	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/SCB	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	REG FILE 02	1 1
	RES DEPY GI	1 1	RES TELFORD, J	1 1
	RES/DE/EIB	1 1	RGN2 FILE 01	1 1
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	1 1	NRC PDR	1 1
	NSIC HARRIS, J	1 1	NSIC MAYS, G	1 1

TOTAL NUMBER OF COPIES REQUIRED: LTTR 44 ENCL 43

## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point 4										DOCKET NUMBER (2) 0 5 0 0 0 2 5 1										PAGE (3) 1 OF 3											
TITLE (4) Operation In Excess Of 24 Hours With Greater Than 2 Percent Calculated Quadrant Power Tilt Ratio Without Running Flux Map or Reducing Overpressure, Overtemperature																															
EVENT DATE (5)						LER NUMBER (6)				REPORT DATE (7)						OTHER FACILITIES INVOLVED (8)						Setpoints									
MONTH		DAY		YEAR		YEAR		SEQUENTIAL NUMBER		REVISION NUMBER		MONTH		DAY		YEAR		FACILITY NAMES						DOCKET NUMBER(S)							
																		N/A						0 5 0 0 0							
0 7		1 2		8 7		8 7		0 1 8		0 1		0 8		1 1		8 7		N/A						0 5 0 0 0							
OPERATING MODE (9)		1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																											
POWER LEVEL (10)		9 2		20.402(b)				20.406(e)				80.73(a)(2)(w)				73.71(b)															
				20.406(a)(1)(i)				80.38(a)(1)				80.73(a)(2)(v)				73.71(c)															
				20.406(a)(1)(ii)				80.38(a)(2)				80.73(a)(2)(vi)				OTHER (Specify in Abstract below and in Text, NRC Form 368A)															
				20.406(a)(1)(iii)				X 80.73(a)(2)(i)				80.73(a)(2)(vii)(A)				SPECIAL REPORT															
				20.406(a)(1)(iv)				80.73(a)(2)(ii)				80.73(a)(2)(viii)(B)																			
				20.406(a)(1)(v)				80.73(a)(2)(iii)				80.73(a)(2)(ix)																			
				20.406(a)(1)(vi)				80.73(a)(2)(iv)				80.73(a)(2)(x)																			
LICENSEE CONTACT FOR THIS LER (12)																															
NAME Virgil Wager, Licensing Engineer																TELEPHONE NUMBER AREA CODE 3 0 5 2 4 6 7 6 4 7 6															
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																															
CAUSE	SYSTEM	COMPONENT	MANUFAC. TOLER	REPORTABLE TO NPPS	CAUSE	SYSTEM	COMPONENT	MANUFAC. TOLER	REPORTABLE TO NPPS	CAUSE	SYSTEM	COMPONENT	MANUFAC. TOLER	REPORTABLE TO NPPS	CAUSE	SYSTEM	COMPONENT	MANUFAC. TOLER	REPORTABLE TO NPPS												
B	L G	R, J, X	E, 1, 4, 2	No																											
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 - approximately fifteen single space typewritten lines) (16)																															
<p>Unit 4 was increasing power after being returned to service on July 9, 1987. Power Range detector N-41 was replaced during the outage and thus the channel required recalibration. Until the calibration was completed the Upper and Lower section deviation alarms were declared to be out of service and a manual calculation of Quadrant Power Tilt Ratio (QPTR) was performed each shift. At 0023 on July 11, the power increase was stopped at 92% due to a calculated 2.84% QPTR. Due to operating difficulties unrelated to QPTR, reactor power was reduced to 75%. Prior to increasing power from 75% a flux map was run and it verified Hot Channel Factors to be acceptable and QPTR to be less than 2%. The manual calculation QPTR performed concurrently with the flux map showed a tilt of 2.36%. Power was conservatively limited to 95% until new detector currents to use in the manual calculations could be issued. The 24 hour time limit for Technical Specification 3.2.6.1.1 had been exceeded. The Overpressure/Overtemperature Delta Temperature setpoints were not reduced as required by Technical Specification 3.2.6.1.2, because Power Range detector N-44 was out of service. Power Range logic will not allow two channels to be out of service at the same time without generating a reactor trip. The applicable procedure will be revised to address the 24 hour time limit of Technical Specifications 3.2.6.1.1.</p>																															

8710050147 870811  
PDR ADOCK 05000251  
S PDRIE22  
11/

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Turkey Point Unit 4	0 5 0 0 0 2 5 1	8 7	— 0 1 8	— 0 1	0 2	OF	0 3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

EVENT

Prior to Unit 4 startup on July 8, 1987, during the latest outage, Power Range Detector N-41 was replaced. Replacement of N-41 requires recalibration of the channel. Until the calibration was completed the Upper and Lower section deviation alarms were declared out of service (OOS) and a manual calculation of the Quadrant Power Tilt Ratio (QPTR) was performed on each shift. A decision was made that reactor power would be limited by the most conservative calculation of QPTR. On July 9, 1987, with the unit at 50% power, a series of Flux Maps were performed to develop new interim numbers to be used in the manual calculation of QPTR and the QPTR calibration of N-41. The 50 percent Flux Map showed acceptable Hot Channel Factors, and manual calculations of QPTR showed less than 2 percent tilt. During the subsequent power increase, the manual calculation of QPTR on July 11, 1987 at 0023, showed a tilt of 2.84 percent. As planned, reactor power was limited to 94.32 percent. Subsequent QPTR calculations showed an additional increase in tilt to approximately 5.0 percent and power was further limited to 90 percent. There was a perception that the calculated power tilt was erroneous, based on the results of the flux map run on July 9, 1987. Technical Specification 3.2.6.1 requires that with a QPTR greater than 2 percent, the Hot Channel Factors must be verified or the Overpressure/Overtemperature Delta Temperature (OP/OT DT) setpoint shall be reduced. Additional calculation of QPTR showed some improvement in QPTR but due to other operational difficulties unrelated to QPTR, reactor power was reduced to approximately 75 percent. (Unit 4 experienced a Turbine runback refer to LER 251,87-19.) Prior to increasing power a second flux map was performed on July 12, 1987 at 1930. The flux map verified Hot Channel Factors acceptable and QPTR to be less than 2 percent. The manual calculation of QPTR performed concurrently with the flux map showed a tilt of 2.36 percent. The maximum allowed power was still based on the most conservative calculation and power was therefore limited to 95 percent. To correct the difference in the QPTR calculation, a second set of interim calibration numbers was developed to be used in the manual calculation of QPTR. With new numbers the manual QPTR calculation showed less than 2 percent tilt, which was similar to the results of the second Flux Map. As the unacceptable flux tilt calculation was initially discovered at 0023 on July 11, Technical Specification 3.2.6.1.2 required reduction of the OP/OT DT setpoint by 0023, July 12. Contrary to this the OP/OT DT setpoints were not reduced because Power Range detector N-44 was out of service to replace a faulty power supply. Power Range Logic will not allow 2 Power Range Channels out of service at the same time without generating a reactor trip. Hot Channel Factors were not determined because of the power limits that were placed on the unit of 94.32 percent and subsequently 90 percent. Hot Channel Factors were determined at 75 percent power and found acceptable. This exceeded the 24 hour time limit of Technical Specification 3.2.6.1.1 by 19 hours and 07 minutes.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Turkey Point Unit 4	0 5 0 0 0 2 5 1	8 7	— 0 1 8	— 0 1	0 3	OF	0 3

TEXT (If more space is required, use additional NRC Form 308A's) (17)

CAUSE OF EVENT

The perception that the calculated power tilt was erroneous, based on the results of the flux map run on July 9, 1987, resulted in the delay of running a second flux map. The perception was strengthened by the problems that were known to exist with the power range detector currents at the time of the event. The cause of exceeding the 24 hour limit of the Technical Specification Limiting Condition of Operation was personnel error mainly due to insufficient emphasis on the Technical Specification requirement in procedure ONOP-12308.2.

ANALYSIS OF EVENT

The power level was limited to 94.32 percent and subsequently to 90 percent for a QPTR of 2.84 percent and 5 percent respectively. The results of the second flux map that was run at 1930, July 12, 1987, verified the Hot Channel Factors to be acceptable and the QPTR was less than 2 percent. Based on the above the health and safety of the public was not affected.

CORRECTIVE ACTION

- 1) A second Flux Map was performed to verify Hot Channel Factors and QPTR to be acceptable.
- 2) Power level was limited, based on the most conservative calculation of QPTR.
- 3) Procedure ONOP-12308.2, Power Range Nuclear Instrumentation Verification of Upper, Lower and Channel Deviation Alarms, will be updated to address the 24 hour time limit for determining Hot Channel Factors and reducing the OP/OT DT setpoints.
- 4) This event will be addressed in the Licensed Operator Requalification classes.

ADDITIONAL DETAILS:

Manufacturer: Power Range Detector, Electro Standard Labs, Model WL 24154. High Voltage Power Supply, Westinghouse, Model UPMD-X54W.  
Similar occurrences: none



SEPTEMBER 25 1987

L-87-393  
10 CFR 50.73

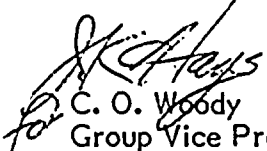
U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Unit 4  
Docket No. 50-251  
Reportable Event: 87-18-01  
Date of Event: July 12, 1987  
Operation in Excess of 24 Hours With Greater Than  
2 Percent Calculated Quadrant Power Tilt Ratio Without  
Running Flux Map or Reducing Overpressure, Overtemperature Setpoints

The attached Licensee Event Report revision is being submitted to include the Special Report requirement of Technical Specification 6.9.3.6. No changes to the abstract or text of Revision 0 have been made.

Very truly yours,

  
C. O. Woody  
Group Vice President  
Nuclear Energy

COW/TCG/gp

Attachment

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

1E22  
11