

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8706300455      DOC. DATE: 87/06/25      NOTARIZED: NO      DOCKET #  
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light C      05000250  
 50-251 Turkey Point Plant, Unit 4, Florida Power and Light C      05000251  
 AUTH. NAME      AUTHOR AFFILIATION  
 WAGER, V. B.      Florida Power & Light Co.  
 WOODY, C. O.      Florida Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 87-018-00: on 870526, determined that subsequent to large  
 break LOCA procedures would have allowed excessive time w/o  
 safety injection flow during switchover to coldleg  
 recirculation. Revised LOCA per current model. W/870625 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/ROAB	2 2
	AEOD/DSP/TPAB	1 1	DEDRO	1 1
	NRR/DEST/ADE	1 0	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/GAB	1 1
	NRR/DOEA/EAB	1 1	NRR/DREP/RAB	1 1
	NRR/DREP/RPB	2 2	NRR/PMAS/ILRB	1 1
	NRR/PMAS/PTSB	1 1	REG FILE 02	1 1
	RES DEPY GI	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 42 ENCL 40

## 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) Design Basis Reconstitution Discovers That Procedures May Have Permitted Excessive Time With No Safety Injection Flow During Switchover To Cold Leg Recirculation Following a LOCA

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)
0 5	2 6	8 7	8 7	0 1 8	0 0	0 6	2 5	8 7	Turkey Point Unit 4		0 5 0 0 0 2 5 1
											0 5 0 0 0

OPERATING MODE (9)	6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)						
		20.406(a)(1)(i)	50.38(c)(1)	X 50.73(a)(2)(v)	73.71(c)						
		20.406(a)(1)(ii)	50.38(c)(2)	50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
		20.406(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)							
		20.406(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)							
		20.406(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(ix)							

## LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Virgil B. Wager, Licensing Engineer	AREA CODE 3 0 5 2 4 6 - 1 3 0 0

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

## SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

## ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On May 26, 1987, with Unit 3 in Mode 6 and Unit 4 in Mode 5, it was determined that subsequent to a large break Loss of Coolant Accident (LOCA) procedures would have permitted a period of time up to 10 minutes with no safety injection flow while performing the switchover to coldleg recirculation. Procedures required all Safety Injection (SI) pumps to be stopped simultaneously to allow switchover. During the Design Basis Documentation program, it was discovered that the interruption of ECCS flow had not considered the latest analytical modeling assumptions derived from large scale model tests performed in Japan. Calculations using the latest modeling assumptions for large and small break LOCA's were performed. These calculations indicate that for the large break LOCA, with flow from only one HHSI pump following the switchover to recirculation, approximately 2 minutes without SI flow is acceptable, and for the small break LOCA an interruption of up to 10 minutes is acceptable. The EOP's associated with the recirculation switchover will be revised to ensure there will be no interruption of SI flow greater than 50 seconds during switchover to the recirculation phase. Engineering will continue to evaluate the as-found condition to determine its safety significance.

8706300455 870625  
PDR ADDCK 05000250  
S PDR

JE22  
1/1

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104  
EXPIRES: 8/31/88

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

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

EVENT:

On May 26, 1987, with Unit 3 in Mode 6 and Unit 4 in Mode 5, it was determined that subsequent to a large break Loss of Coolant Accident (LOCA) Emergency Operating Procedures (EOP) would have permitted a period of time up to 10 minutes with no safety injection flow to the core while performing the switchover to cold leg recirculation.

Procedure EOP-ES-1.3, "Transfer To Cold Leg Recirculation", required all Safety Injection (SI) pumps to be stopped simultaneously to allow switchover from the injection phase to the recirculation phase following a LOCA. Thus, there would be a time period (the EOP allowed 10 minutes for switchover to be completed) during which no SI flow would be delivered to the Reactor Coolant System (RCS).

If off-site power is lost and one emergency diesel generator (EDG) is assumed to fail following a large break LOCA, initially minimum safeguards (one Residual Heat Removal (RHR) pump, two High Head Safety Injection (HHSI) pumps and one Containment Spray (CS) pump) would be operational. The RHR pump and two HHSI pumps would be injecting into the RCS. At 20 to 30 minutes after reactor trip the RHR pump is stopped to maintain EDG load limit. For the remainder of the injection phase, the two HHSI pumps are injecting into RCS. When the time to switchover to recirculation is reached, the two HHSI pumps are stopped and the switchover is accomplished within 10 minutes. Once the switchover process has been completed, an RHR pump and an HHSI pump are started with the RHR pump feeding the HHSI pump and the HHSI pump injecting into the RCS.

Calculations generated in 1979 justified a 10 minute period with no SI flow, however this calculation did not account for certain phenomenon which were identified during large scale tests conducted in Japan in the early 1980's.

CAUSE OF EVENT

During the Design Basis Documentation program, Westinghouse was requested to provide the original design basis for the Emergency Core Cooling System procedures used for the switchover to containment sump recirculation. Upon review of the plant documentation it was discovered that the interruption of ECCS flow during the switchover to recirculation cooling had not considered the latest analytical modeling assumptions derived from large scale model tests performed in Japan in the early 1980's. Consequently, Westinghouse was requested to perform analyses and evaluations, using the latest analytical modeling assumptions, to recreate the basis for the original ECCS design.

## 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	05000250	87	018	00	03	OF	03

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

The results of these analyses and evaluations performed by Westinghouse have shown that the original ECCS switchover design and procedure could not be demonstrated to be acceptable for large break LOCAs greater than or equal to 8 inches in equivalent diameter. These analyses show that an interruption in ECCS flow greater than about two minutes may result in potentially excessive peak clad temperatures.

ANALYSIS OF EVENT

Calculations using the latest modeling assumptions for large and small break LOCA's were performed. These calculations indicate that for the large break LOCA, with flow from only one HHSI pump following the switchover to recirculation, approximately 2 minutes without SI flow is acceptable. No significant dryout or heatup of the core is calculated to occur. Calculations for the small break LOCA demonstrate that an interruption of up to 10 minutes in SI flow during switchover is acceptable for breaks less than 8 inches in diameter.

Since this discrepancy represents a condition which is not analyzed for either Turkey Point unit, additional evaluation is being done by our engineering department to determine the safety significance of this condition. Should this evaluation significantly change this LER, a LER update will be sent accordingly. Based on the above, the health and safety of the public were not affected.

CORRECTIVE ACTIONS

- 1) The EOP's associated with the recirculation switchover will be revised to ensure there will be no interruption of SI flow greater than 50 seconds during switchover to the recirculation phase.
- 2) A safety evaluation has been prepared by Westinghouse for the EOP revisions which addresses the accidents previously evaluated in the Turkey Point Final Safety Analysis Report. This safety evaluation concludes that the EOP revisions will not affect the accident analyses documented in the FSAR and that no adverse effects on equipment have been created.
- 3) Engineering will continue to evaluate this discrepancy to determine the safety significance of the as found condition.

ADDITIONAL DETAILS

Similar occurrences: none.





JUNE 25 1987

L-87-268  
10 CFR 50.73

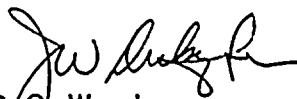
U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

Gentlemen:

Re: Turkey Point Unit 3  
Docket No. 50-250  
Reportable Event: 87-18  
Date of Event: May 26, 1987  
Design Basis Reconstitution Discovers That Procedures  
May Have Been Permitted Excessive Time With No Safety Injection  
Flow During Switchover To Cold Leg Recirculation Following a LOCA

The attached Licensee Event Report 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  
Group Vice President  
Nuclear Energy

COW/SDF/gp

Attachment

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

IEZZ  
11