

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8806170177    DOC. DATE: 88/06/13    NOTARIZED: NO    DOCKET #  
 FACIL: 50-250 Turkey Point Plant, Unit 3, Florida Power and Light Co    05000250  
 AUTH. NAME    AUTHOR AFFILIATION  
 SALAMON, G.    Florida Power & Light Co.  
 CONWAY, W.F.    Florida Power & Light Co.  
 RECIP. NAME    RECIPIENT AFFILIATION

SUBJECT: LER 88-008-00: on 880613, design basis reconstitution effort identifies sys alignment.

W/8    ltr.

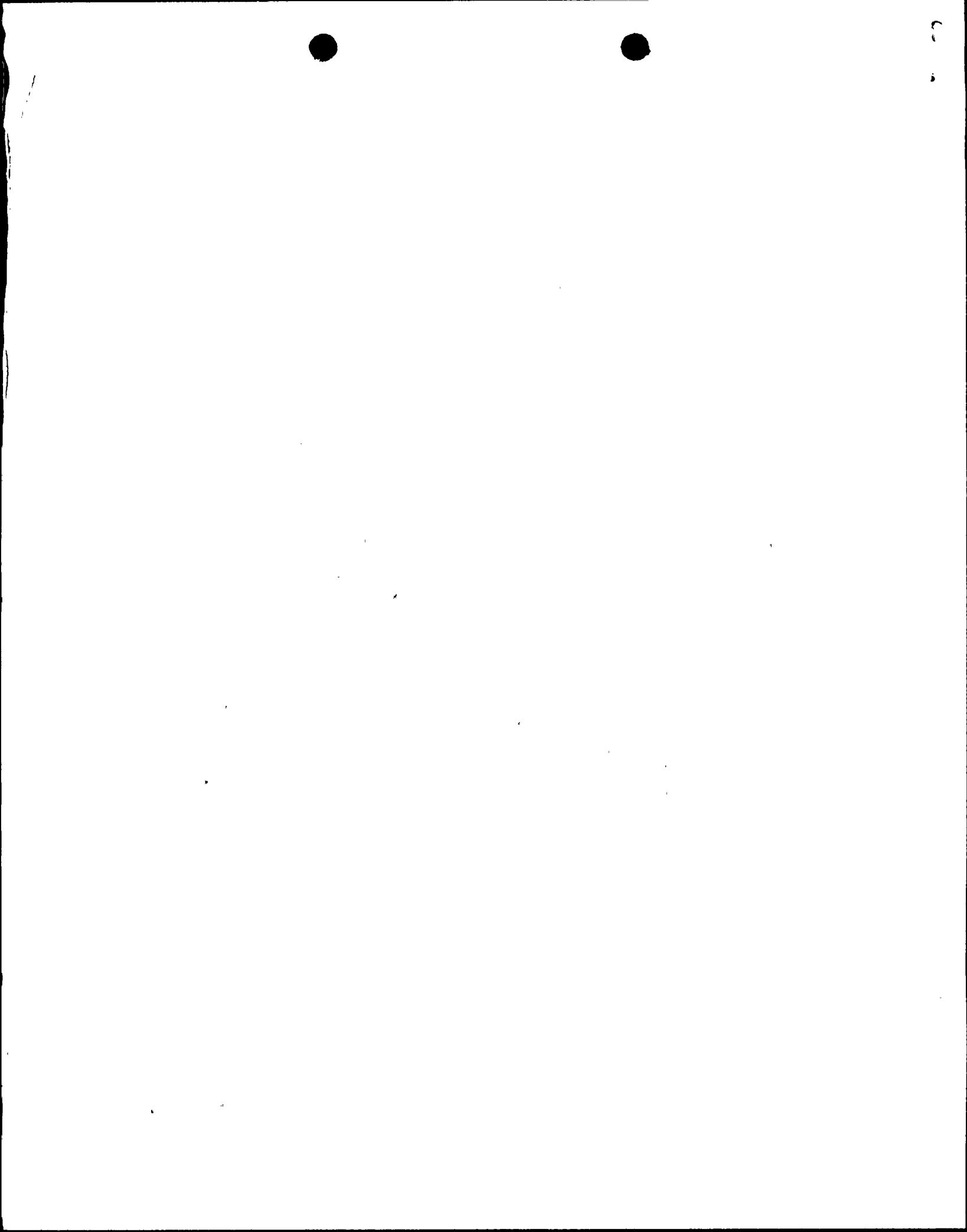
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 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>TURKEY POINT UNIT 3</b>	DOCKET NUMBER (2) 0 5 0 0 0 2 5 0	PAGE (3) 1 OF 0 3
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TITLE (4) **DESIGN BASIS RECONSTITUTION EFFORT IDENTIFIES SYSTEM ALIGNMENT WHICH COULD HAVE RESULTED IN INSUFFICIENT NPSH FOR CERTAIN PUMPS DURING POST-LOCA RECIRCULATION**

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		
0 5	0 8	8 8	8 8	0 0 8	0 0	0 6	1 3	8 8	TURKEY POINT UNIT 4		
									DOCKET NUMBER(S) 0 5 0 0 0 2 5 1		
									0 5 0 0 0		

OPERATING MODE (9) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 1 0 0	20.402(b)	20.405(e)	50.73(a)(2)(iv)	73.71(b)						
	20.406(a)(1)(i)	50.38(e)(1)	50.73(a)(2)(v)	73.71(c)						
	20.406(a)(1)(ii)	50.38(e)(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)(vii)(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)		TELEPHONE NUMBER	
NAME GABE SALAMON, COMPLIANCE ENGINEER		AREA CODE 3 0 5	2 4 6 1 - 6 5 6 0

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (if yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO						

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

During Turkey Point's ongoing Design Basis Reconstitution effort, a flowpath which could result in insufficient net positive suction head (NPSH) to certain pumps during post loss-of-coolant-accident (LOCA) recirculation was identified. In the event of a small break LOCA, the Residual Heat Removal (RHR) injection lines are isolated and the RHR pumps deliver flow to the Safety Injection (SI) and Containment Spray (CS) systems via valve 887. To prevent excessive flowrates during refueling operations, valve 887 is throttled 30% open. A documentation review determined that during initial plant startup, the valve was tested and throttled to obtain a flow of 3750 gpm. Subsequent calculations have determined that with valve 887 open to initial plant startup position, sufficient NPSH would be provided to the SI or CS pumps. Correlation between the valve setting as a result of the preoperational testing and the 30% valve position could not be obtained. Even though there is no firm evidence that a problem existed with valve 887 set at the 30% open position, Turkey Point took the prudent step of placing valve 887 in the fully open position. This concern was identified on May 13, 1988, with Unit 3 at 100% power and Unit 4 in mode 5. An evaluation of fully opening the valve had been performed to assure acceptability. Procedures were revised to assure that valve 887 was maintained in the fully open position.

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

EVENT

During the ongoing Design Basis Reconstitution Program (DBRP), the Turkey Point Units 3 and 4 Emergency Core Cooling System (ECCS) and containment spray (CS) (EIIS:BE) flows were evaluated for various system alignments during the post-LOCA injection and recirculation phases using a model developed in support of the DBRP. On May 13, 1988, with Unit 3 at 100% power and Unit 4 in mode 5, a flowpath which could result in insufficient net positive suction head (NPSH) to certain pumps during post loss-of-coolant-accident (LOCA) recirculation was identified.

The Residual Heat Removal System (RHR) (EIIS:BP) at Turkey Point consists of two RHR heat exchangers, two RHR pumps, and associated piping, valves, and instrumentation. During post-LOCA recirculation, the RHR pumps take suction from the sump, discharge through the RHR heat exchangers and then into the Reactor Coolant System (RCS) (EIIS:AB) or to the Safety Injection (SI) pump suction, depending on RCS pressure. In the event of a small break LOCA, the RHR injection lines to the RCS cold legs are isolated and the RHR pumps draw suction from the sump and deliver flow to the SI and CS systems. This flow is delivered via an 8" crossover header which contains a manual butterfly valve (887). This valve serves two functions:

- 1) Isolate the alternate low head injection flowpath from the Refueling Water Storage Tank (RWST).
- 2) Throttle the flow from the RHR pump to prevent excessive flowrates during refueling operations when refueling water is being returned to the RWST.

In order to meet the second function, the 887 valve is set in the throttled position of 30% open.

Initial calculations indicated that with the 887 valve in the 30% open position, with one RHR pump, one CS pump, and two SI pumps operating in post-LOCA recirculation, flashing will occur downstream of valve 887, leading to inadequate NPSH for SI and CS pump operation. A review of existing documentation determined that during the initial plant startup, the valve was tested and throttled to obtain a flow of 3750 gpm, in accordance with the original preoperational test procedures. Subsequent calculations have determined that with valve 887 open to the position set during initial plant startup, sufficient NPSH would be provided to the SI or CS pumps during the post-LOCA recirculation mode. Although valve 887 was maintained under administrative controls assuring that the valve was set and locked in the 30% open position, positive correlation between the valve setting as a result of the preoperational testing and the 30% valve position could not be obtained, and a decision was made to report this event to the Commission.

It is believed that the 30% open position is the result of the preoperational testing discussed above, and that it corresponds to the 3750 gpm flow rate obtained under the preoperational test conditions. However, even though there is no firm evidence that a problem existed with valve 887 set at the 30% open

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		8 8	0 0 8	0 0		

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

position, Turkey Point took the prudent step of placing valve 887 in the fully open position.

CAUSE OF EVENT

This alignment was discovered as a result of Turkey Point's ongoing Design Basis Reconstitution effort. Although valve 887 was maintained at a 30% open setting, no documentation could be found to indicate a correlation between the 30% open setting and the 3750 gpm flowrate which was established during preoperational testing. The reason for the absence of documentation could not be identified.

ANALYSIS OF EVENT

Engineering calculations have determined that a flow rate of 3750 gpm would have resulted in sufficient NPSH to the SI and CS pumps. Emergency Operating Procedures (EOP) limit CS operation to one CS pump whenever the RWST level is below 155,000 gallons. This will always be the case when post-LOCA recirculation is established. No emergency requiring the operation of the CS or SI pumps in the recirculation mode has occurred at Turkey Point. Based on the above, the health and safety of the public were not affected.

CORRECTIVE ACTION

- 1) Procedures were revised to maintain valve 887 locked in the fully open position with the respective unit in modes 1 through 5. With the unit in mode 6, the valve will be throttled to the 30% open position. Operation with the valve in the fully open position assures that for all affected modes of operation, adequate NPSH will be provided.
- 2) Operation with valve 887 fully open results in slightly higher pump flow rates than operation with the valve only 30% open. It was confirmed that equipment power requirements contained in the Diesel Generator Loading Study bound those resulting from maintaining valve 887 in the fully open position, and thus Emergency Diesel loading is not negatively impacted.

ADDITIONAL INFORMATION

Similar occurrences: none



JUNE 13 1988

L-88-259  
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 No. 50-250 and 50-251  
Reportable Event: 88-08  
Date of Event: May 13, 1988  
Design Basis Reconstitution Effort Identifies System  
Alignment Which Could Have Resulted in Insufficient NPSH For  
Certain Pumps During Post-LOCA Recirculation

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,

  
W. F. Conway  
Senior Vice President-Nuclear

WFC/SDF/dd

Attachment

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

IER2  
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