

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9007060157 DOC.DATE: 90/07/02 NOTARIZED: NO DOCKET #  
 FACIL:50-251 Turkey Point Plant, Unit 4, Florida Power and Light C 05000251  
 AUTH.NAME AUTHOR AFFILIATION  
 POWELL,D.R. Florida Power & Light Co.  
 HARRIS,K.N. Florida Power & Light Co.  
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-005-00:on 900605,ICW flow to CCW HXs decreased below  
 15,400 gpm while cleaning 4A ICW/CCW basket strainer.

W/9 1ltr.

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FPL

P.O. Box 14000, Juno Beach, FL 33408-0420

JUL 02 1990

L-90-243  
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: 90-05  
Date of Event: June 5, 1990  
Intake Cooling Water (ICW) Flow to the Component Cooling Water  
(CCW) Heat Exchangers Decreased Below 15,400 GPM While  
Cleaning the 4A ICW/CCW Basket Strainer

The attached Licensee Event report is being submitted pursuant to the requirements of 10 CFR 50.73 to provide voluntary notification of the subject event.

Very truly yours,

*K. N. Harris*  
K. N. Harris  
Vice President  
Turkey Point Plant Nuclear

KNH/DRP/DWH/cml

attachment

cc: Stewart D. Ebner, Regional Administrator, Region II, USNRC  
Senior Resident Inspector, USNRC, Turkey Point Plant

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FDR ADOCK 05000251  
S FDC

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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Turkey Point Unit 4										DOCKET NUMBER (2) 0 5 0 0 0 2 5 1 1										PAGE (3) 1 OF 4		
TITLE (4) Intake Cooling Water (ICW) Flow to the Component Cooling Water (CCW) Heat Exchangers Decreased Below 15,400 GPM While Cleaning the 4A ICW/CCW Basket Strainer																						
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)							
06	05	90	90	005	000	07	02	90	N/A						0 5 0 0 0 0 0 0 0 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)																				
POWER LEVEL (10)		20.402(b)				20.406(a)				50.73(a)(2)(iv)				73.71(b)								
100		20.406(a)(1)(i)				50.36(a)(1)				50.73(a)(2)(v)				73.71(c)								
		20.406(a)(1)(ii)				50.36(a)(2)				50.73(a)(2)(vi)				<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 356A)								
		20.406(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(vii)(A)				Voluntary								
		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 David R. Powell, Licensing Superintendent										TELEPHONE NUMBER												
										AREA CODE 3 10 15 2 1 4 1 6 1 - 1 6 5 1 5 1 9												
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																						
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS												
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)

At 1130, on June 5, 1990, with Unit 4 in Mode 1 at 100 percent power, the Intake Cooling Water (ICW) flow rate to the Component Cooling Water (CCW) heat exchangers was verified to be below the caution level ICW flow rate of 15,400 gpm specified in Operating Procedure 4-OP-019, "Intake Cooling Water System." With the 4A ICW header out of service to manually clean the 4A ICW/CCW basket strainer, this condition was considered to place both ICW headers in an inoperable status. Unit 4 entered TS 3.0.1 at this time. At 1145, the 4A ICW/CCW basket strainer was returned to service and the ICW flow rate increased to 21,900 gpm. Unit 4 exited TS 3.0.1 at this time. The caution level 15,400 gpm ICW flow rate was interpreted as being the minimum flow rate to ensure removal of the design basis CCW System heat load. At 1223, FPL notified the NRC Operations Center of a significant event in accordance with 10CFR50.72(b)(1)(ii)(B). The ICW flow rate had decreased to 11,900 gpm. An engineering calculation, based on the plant conditions that existed at the time, verified that the ICW flow rate of 11,900 gpm would ensure removal of the design basis CCW System heat load. The ICW flow rate was not below that required to remove design basis heat loads and therefore, the 4B ICW header was not inoperable. At 1520, on June 27, 1990, FPL retracted the significant event notification.



## 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 4	0500025190	—	005	—00	2	OF	4

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

DESCRIPTION OF THE EVENT

At 0625, on June 5, 1990, with Unit 4 in Mode 1 at 100 percent power, the 4A Intake Cooling Water (ICW)/Component Cooling Water (CCW) basket strainer (EIIIS:BI, Component:BSKT) was taken out of service in accordance with Technical Specification 3.5.b.1 for cleaning. This action placed Unit 4 in a 24 hour Limiting Condition for Operation (LCO) to perform the task.

At 1100, the Plant Supervisor-Nuclear (PSN) was notified of a minor leak on a gasketed flange identified upon closing the 4A ICW/CCW basket strainer. While investigating the leak, the PSN observed a high differential pressure across the 4B ICW/CCW basket strainer. At 1130, the PSN verified total ICW flow rate to the CCW heat exchangers to be below the caution level flow rate of 15,400 gpm specified in Operating Procedure 4-OP-019, "Intake Cooling Water System." Unit 4 entered Technical Specification 3.0.1 at this time for failure to meet the conditions of Technical Specification 3.5. Both ICW headers were considered to be inoperable.

At 1145, the 4A ICW/CCW basket strainer was placed back in service with the leaking gasketed flange. The ICW flow rate to the CCW heat exchangers increased to 21,900 gpm and Unit 4 exited Technical Specification 3.0.1.

At 1223, on June 5, 1990, FPL notified the NRC Operations Center of a significant event in accordance with 10CFR50.72(b)(1)(ii)(B) based on the ICW flow rate to the CCW heat exchangers suspected of being below the minimum required design basis flow rate.

At 1520, on June 27, 1990, FPL notified the NRC Operations Center that the ICW flow rate to the CCW heat exchangers was calculated not to be below the minimum flow rate required to remove design basis heat loads on June 5, 1990. This LER is being submitted on a voluntary basis to provide additional discussion on the identified condition.

CAUSE OF THE EVENT

The decrease in ICW flow rate to the CCW heat exchangers was caused by inadequate administrative controls. While valving out an ICW/CCW basket strainer for backwashing, procedure 4-OP-019 requires the ICW/CCW basket strainer to be restored to service if the ICW flow rate to the CCW heat exchangers begins to approach 15,400 gpm. Manual cleaning of an ICW/CCW basket strainer is not addressed in procedure 4-OP-019. This task is performed under a Plant Work Order (PWO). No requirements exist to monitor the total ICW flow rate while manually cleaning an ICW/CCW basket strainer.



FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)				PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER				
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TEXT: If more space is required, use additional NRC Form 368A's (17)

The cause for declaring Unit 4 outside its design basis was absence of readily available criteria that could be used for making such an assessment, given a specific set of plant conditions. Based on an ICW intake cooling water temperature of 95 degrees Fahrenheit (F) and a specific CCW heat exchanger fouling factor, an ICW flow rate of 15,000 gpm had been previously calculated to remove design basis heat loads. Normal practice has been to maintain the ICW flow rate above 15,400 gpm. This flow rate does not correlate to the actual ICW flow rate required to remove the design basis heat loads at any given time. Normal ICW/CCW system configurations differ from that assumed to exist during a design basis event. Additionally, variables, such as CCW heat exchanger fouling and ICW water temperature, influence the actual ICW flow rate required to remove design basis CCW System heat loads.

### ANALYSIS OF THE EVENT

The system configuration when the caution ICW flow rate was exceeded included: two ICW pumps, one ICW header, one CCW pump and three CCW heat exchangers. Flow to the Turbine Plant Cooling Water (TPCW) heat exchangers was not isolated. One ICW header had been taken out of service under a Limiting Condition for Operation (LCO) for manual cleaning of the grass filled ICW/CCW basket strainer.

In order to verify whether Unit 4 was within its design basis, FPL Engineering evaluated the following post-accident system alignment: one ICW pump, one ICW header, one CCW pump, two CCW heat exchangers and flow to TPCW isolated. This configuration would have resulted in an actual ICW flow rate of 11,300 gpm to the CCW heat exchangers, based on the plant conditions existing at the time of the event. This ICW flow rate would have been sufficient to remove the design basis heat loads with an ICW intake canal water temperature at or below 91 degrees Fahrenheit (F). The actual temperature of the ICW intake canal water at the time of the event was verified to be below 91 degrees F.

### CORRECTIVE ACTIONS

1. A Special Instruction has been written requiring the PSNs to make provisions for monitoring the total ICW flow rate while the ICW/CCW basket strainers are being manually cleaned. If the total ICW flow rate approaches 15,400 gpm, the ICW/CCW basket strainer shall be restored to an operable status and the opposite train ICW/CCW basket strainer should be backwashed/manually cleaned. Monitoring the total ICW flow rate while manually cleaning an ICW/CCW basket strainer will provide time for taking actions to prevent a degraded ICW flow rate condition. Additionally, the System Engineer is to be contacted whenever the ICW flow rate approaches 15,400 gpm to assess the condition.
2. FPL Engineering will provide the System Engineer with at least one ICW flow versus ICW water temperature curve. The curve will be based on a specific CCW heat exchanger fouling factor selected as bounding those normally allowed to exist during normal operation. This task will be completed by July 13, 1990.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES 8-31-85

FACILITY NAME (1)  Turkey Point Unit 4	DOCKET NUMBER (2)  0   5   0   0   0   2   5   1					LER NUMBER (6)			PAGE (3)		
						YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
						9   0	—   0   0   5	—   0   0		4	OF 4

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

3. As a long term action, FPL Engineering is continuing work associated with Request for Engineering Assistance (REA) 88-730 to provide the Technical Department with an improved method of predicting the heat removal capacity of the ICW/CCW Systems under specified conditions. This action is dependent on flow rate testing that will be used to improve the existing computer models of the ICW System. The flow rate testing will be completed by March 15, 1991 while Units 3 and 4 are shutdown for the dual unit outage. The REA is scheduled to be completed by June 15, 1991.

**ADDITIONAL INFORMATION**

An event involving a degraded ICW flow rate condition was reported in Licensee Event Report (LER) 50-251/89-006.



