

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9105300325 DOC.DATE: 91/05/24 NOTARIZED: NO DOCKET #
 FACIL:50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co. 05000389
 AUTH.NAME AUTHOR AFFILIATION
 MEAD,S.C. Florida Power & Light Co.
 SAGER,D.A. Florida Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-004-00:on 910503,two containment fan coolers
 inoperable based on low component cooling water flow.Caused
 by design error.Flows returned to normal values,flows
 verified to be above Tech Specs limits.W/910524 ltr.

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MAY 24 1991

L-91-154
10 CFR 50.73

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

Gentlemen:

Re: St. Lucie Unit 2
Docket No. 50-389
Reportable Event: 91-04
Date of Event: May 3, 1991
Two Containment Fan Coolers Inoperable Based on Low Component
Cooling Water Flow Due to a Design Error Causing Low Flow
Alarm Limit Less Than Technical Specifications

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

Very truly yours,

DASager
D. A. Sager
Vice President
St. Lucie Plant

DAS:JJB:kw

Attachment

cc: Stewart D. Ebnetter, Regional Administrator, USNRC Region II
Senior Resident Inspector, USNRC, St. Lucie Plant

DAS/PSL #439

9105300325 910524
PDR ADOCK 05000339
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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUIREMENT: 50 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) St. Lucie Unit 2		DOCKET NUMBER (2) 0 5 0 0 0 3 8 9	PAGE (3) 1 OF 0 4
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TITLE (4) Two Containment Fan Coolers Inoperable Based on Low Component Cooling Water Flow Due to a Design Error Causing Low Flow Alarm Limit Less Than Technical Specifications

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	03	9	1	0	0	4	0	0	5	2	N/A	0151010101
												N/A	0151010101

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(c)	50.73(a)(2)(iv)	73.71(b)
	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)(vii)	OTHER (Specify in Abstract below and in Text NRC Form 366A)
	20.405(a)(1)(iii)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
	20.405(a)(1)(iv)		50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
20.405(a)(1)(v)		50.73(a)(2)(iii)	50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME Sandra C. Mead, Shift Technical Advisor		AREA CODE 4 0 7	4 6 5 - 3 5 5 0

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)									
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

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)

On April 26, 1991, with Unit 2 at 100% power, a non-licensed utility operator physically verified the Locked Throttled position of SB-14530, the common header isolation valve for Component Cooling Water (CCW) from the 2A and 2B Containment Fan Coolers, in accordance with Administrative Procedure #2-0010125A, Data Sheet #36, Weekly Valve Status Check. A functional check of the system flows was not conducted after performance of Data Sheet #36, and it is surmised slightly less than normal CCW flow to the Containment Fan Coolers was the resultant effect.

At 0800 on May 3, 1991, with Unit 2 at 100% power, a non-licensed utility operator discovered the Component Cooling Water flows from the 2A and 2B Containment Fan Coolers were reading approximately 1170 gallons per minute (gpm), below the Technical Specification required minimum of 1200 gpm. The CCW Return from the 2A and 2B Containment Fan Coolers, Valve SB-14530, was found to be in the Locked Throttled position, as required. The proper flows were then re-established on the 2A and 2B Containment Fan Coolers and they were declared operable again. The cause of this event was a design error in that the CCW Low Flow to each Containment Fan Cooler alarm limits were found to be set non-conservatively with respect to the Technical Specifications. A contributing factor was the lack of guidance for position verification of throttled valves.

The significant Corrective Actions taken as a result of this event: 1) The flows on the 2A and 2B Containment Fan Coolers were returned to their normal values; the flows on the 2C and 2D Containment Fan Coolers were verified to be above the Technical Specification limits. 2) The CCW Low Flow Containment Fan Cooler alarms were raised to above 1200 gallons per minute on both units. 3) Procedural guidance will be implemented to provide a definitive position verification method for Locked Throttled valves.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION
REQUEST: 30.8 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE
RECORDS AND REPORTS MANAGEMENT BRANCH (P-632), U.S. NUCLEAR REGULATORY
COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (
3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) St. Lucie Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 8 9	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 1 --	0 0 4	-- 0 0	0 2	OF 0 4

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

DESCRIPTION OF THE EVENT

On April 26, 1991, with Unit 2 at 100% power, a Non-Licensed Utility Operator (NLO) verified satisfactory flow for Component Cooling Water (CCW) (EISS:CC) to the 2A and 2B Containment Fan Coolers (EISS:BK) while performing Check Sheet #7 of Administrative Procedure #2-0010125. Later that day, a NLO physically verified the throttled position of SB-14530, the Common Header Isolation valve for CCW from the 2A and 2B Containment Fan Coolers, in accordance with Administrative Procedure #2-0010125A, Data Sheet #36, Weekly Valve Status Check. A functional check of the system flows was not conducted after performance of Data Sheet #36.

On May 3, 1991, with Unit 2 at 100% power, a NLO discovered the CCW flows from the 2A and 2B Containment Fan Coolers were below the Technical Specification minimum of greater than or equal to 1200 gallons per minute (gpm). The actual flow was approximately 1170 gpm. The NLO conveyed this information to the Control Room and the Assistant Nuclear Plant Supervisor gave instructions to re-establish the flows above the Technical Specification minimum. The proper flows were regained on the 2A and 2B Containment Fan Coolers and they were declared operable again. The CCW flows were checked on the 2C and 2D Containment Fan Coolers and verified to be above that required by Technical Specifications.

CCW Return Isolation Valve SB-14530 from the 2A and 2B Containment Fan Coolers is a manually operated butterfly valve and is maintained in a Locked Throttled position. Administrative Procedure #2-0010125, Schedule of Periodic Tests, Checks and Calibrations, Check Sheet #7, is performed on the fourth Friday of each month. Check Sheet #7 verifies all four Containment Fan Cooler CCW flow rates to be greater than or equal to 1200 gpm each. The records for Check Sheet #7 for the last 2 years were reviewed and at all times the flow on each of the Containment Fan Coolers was verified to be greater than the Technical Specification limit.

During this event it was discovered that the alarms associated with the Containment Fan Cooler CCW Low Flow had limits which were less than required by the Unit 2 Technical Specifications. The alarm limit on the four Containment Fan Coolers on Unit 2 was 1000 gpm. The Technical Specification CCW minimum flow limit for each Containment Fan Cooler is greater than or equal to 1200 gpm. This event would have been avoided had the alarm limits been set conservatively, above the Technical Specification minimum flow. This same condition exists on Unit 1.

CAUSE OF THE EVENT:

The root cause of this event was a design error in that the Low CCW Flow alarms for each of the Containment Fan Coolers were set less than the Technical Specification minimum flows. The alarm limit for each Fan Cooler was less than 1000 gpm, and the Technical Specification limit is greater than or equal to 1200 gpm. This alarm should provide Operations personnel with a warning that a condition exists which could result in a Technical Specification limit being exceeded before it occurs, not after, to allow time to correct the condition prior to its occurrence, no matter what the cause for the condition.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 30.8 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0184), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) St. Lucie Unit 2	DOCKET NUMBER (2) 05000389	LER NUMBER (6)			PAGE (3)	
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

A contributing factor to this event is that the butterfly valve SB-14530 was found to be throttled, to the point in which a small amount of travel of the valve produced a significant change in CCW flow. A Standing Night Order (SNO) gives guidance on the methods to check the position of a Locked Open and a Locked Closed valve, but does not provide direction on how to determine the position of a Locked Throttled valve. It is surmised that the valve was not put back in its correctly throttled position following the performance of Data Sheet #36, Weekly Valve Status Check, resulting in a low flow condition which existed from April 26, 1991 until discovery on May 3, 1991. This was the result of non-licensed utility operator failing to functionally verify the system after the valve position verification was performed. This lack of self-verification of the system by the operator was a contributing factor to this event.

Another contributing factor was the lack of guidance for position verification of throttled valves. Throttled valves should be functionally tested, instead of physically manipulated, to avoid the possibility of disturbing their throttled position.

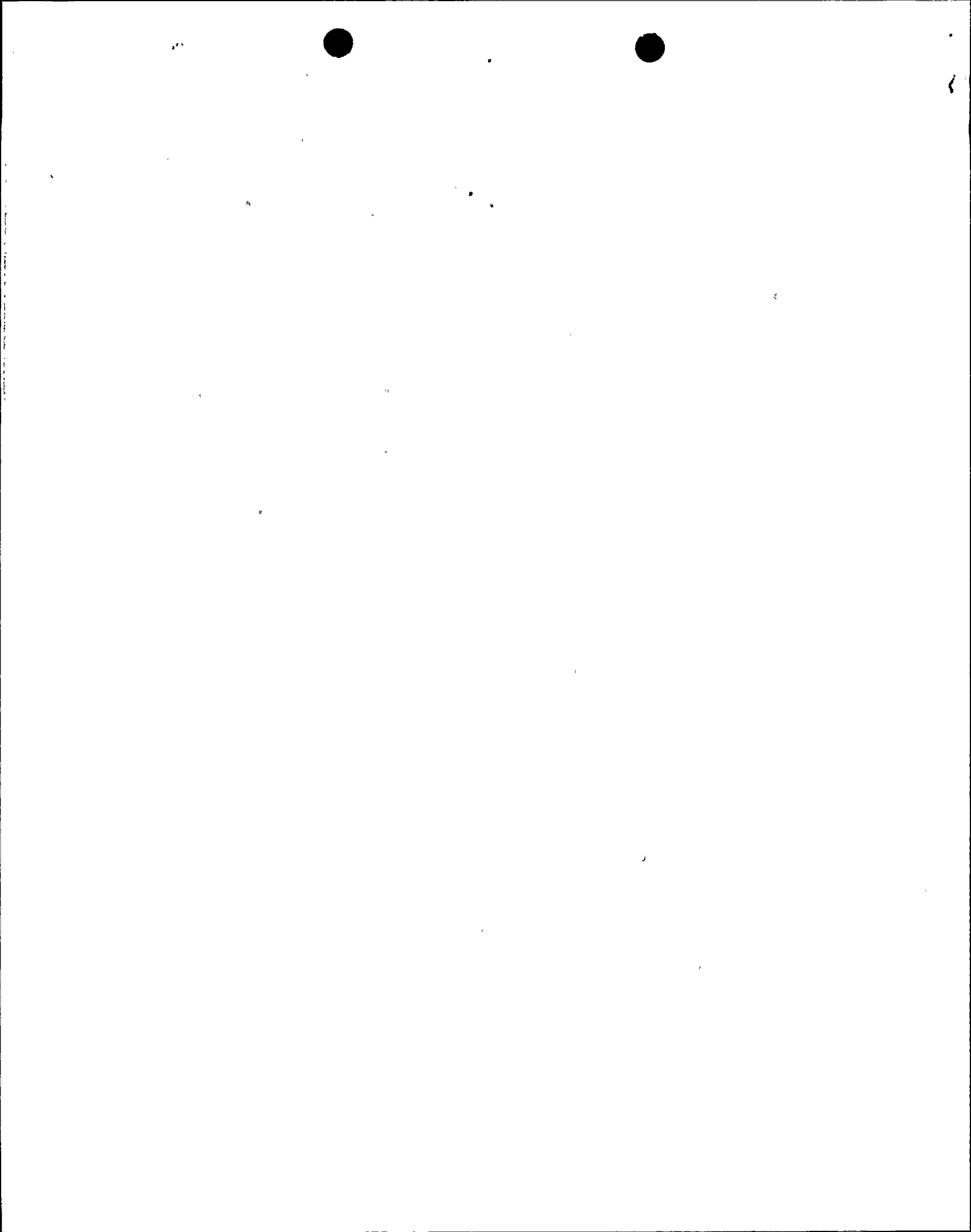
ANALYSIS OF THE EVENT:

This event is reportable under the requirements of 10CFR50.73.a.2.i.B, "any operation prohibited by the plant's Technical Specifications." St. Lucie Unit 2 Technical Specification 3.6.2.3 require four independent Containment Fan Coolers to be OPERABLE in Modes 1, 2, and 3. The action statement only allows one Containment Fan Cooler to be inoperable for 72 hours before initiating a plant shutdown to Hot Standby within the next 6 hours. Both the 2A and 2B Containment Fan Coolers share a common return header for Component Cooling Water flow, in which SB-14530 is the isolation valve. Due to the fact the low flow condition existed on two Containment Fan Coolers, this action statement could not be met and the plant entered Technical Specification 3.0.3. The LER rule states that anytime Technical Specification 3.0.3 is entered, the plant is operating in a condition prohibited by their Technical Specifications.

The Containment Fan Cooler flows were verified to be greater than or equal to 1200 gpm on April 26, 1991. A review of plant records revealed that neither of the Containment Spray Systems were out of service during the period from April 26, 1991 to May 3, 1991.

Although the CCW flow on both the 2A and 2B Containment Fan Coolers was below the Technical Specification minimum flow of 1200 gpm, they both had flow of approximately 1170 gpm, which is only 3% below the required flow. The other two Containment Fan Coolers were above the Technical Specification minimum flow. Florida Power and Light Engineering has performed an analysis to show that the slightly degraded flow rate through the 2A and 2B Containment Fan Coolers did not affect that system's design performance for heat removal because the Intake Cooling Water temperature was well below that used in the design basis assumptions during the week of this event.

Based upon the afore mentioned, it can be concluded the plant remained within its design bases. Therefore, the health and safety of the public was not affected during this condition.



**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION
REQUEST: 20.8 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE
RECORDS AND REPORTS MANAGEMENT BRANCH (P-430), U.S. NUCLEAR REGULATORY
COMMISSION, WASHINGTON, DC 20546, AND TO THE PAPERWORK REDUCTION PROJECT,
3150-0104, OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) St. Lucie Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 3 8 9	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

CORRECTIVE ACTIONS:

- 1) Operations personnel re-established sufficient flow to the 2A and 2B Containment Fan Coolers and returned them to an operable status.
- 2) The I&C Department has raised the CCW Low Flow alarms above the Technical Specification minimum flows for both St. Lucie Unit 1 and Unit 2.
- 3) Operations Department will coordinate a review of control room alarms with FPL Engineering and the I&C Department to ensure that alarms are conservative with respect to the Technical Specifications whenever possible. This review will be completed by July 31, 1991.
- 4) Interim guidance on position verification of CCW throttled valves has already been given to the operators. Operations management will provide enhanced procedural guidance on position verification of throttled valves and will disseminate this information to all Operations personnel by June 30, 1991.
- 5) Operations crew meetings have been held in which self-verification was stressed in daily work practices.

ADDITIONAL INFORMATION:

Affected Component Identification:

Henry Pratt 10" Butterfly Valve
Model : Nuclear MKII with Manual Gear Operator MDT-2
Serial Number: 84464

Previous Similar Events:

This is the first LER caused by alarm limits being set less than the Technical Specification LCO requirements for flow affecting the process flow of a safety related system.