

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9101180078      DOC. DATE: 91/01/14      NOTARIZED: NO      DOCKET #  
 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co.      05000389  
 AUTH. NAME      AUTHOR AFFILIATION  
 WOLAVER, M.W.      Florida Power & Light Co.  
 SAGER, D.A.      Florida Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 90-006-00: on 901219, inadvertent actuation of auxiliary feedwater sys equipment occurred during monthly functional testing. Caused by equipment failure. Details of event & troubleshooting plan reviewed. W/910114 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED: LTR 1 ENCL 1      SIZE: 5  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

**NOTES:**

	RECIPIENT ID CODE/NAME	COPIES	LTR	ENCL	RECIPIENT ID CODE/NAME	COPIES	LTR	ENCL
	PD2-2 LA	1		1	PD2-2 PD	1		1
	NORRIS, J	1		1				
INTERNAL:	ACNW	2		2	ACRS	2		2
	AEOD/DOA	1		1	AEOD/DSP/TPAB	1		1
	AEOD/ROAB/DSP	2		2	NRR/DET/ECMB 9H	1		1
	NRR/DET/EMEB 7E	1		1	NRR/DLPQ/LHFB11	1		1
	NRR/DLPQ/LPEB10	1		1	NRR/DOEA/OEAB	1		1
	NRR/DREP/PRPB11	2		2	NRR/DST/SELB 8D	1		1
	NRR/DST/SICB 7E	1		1	NRR/DST/SRLB8D1	1		1
	NRR/DST/SRXB 8E	1		1	<u>REG FILE</u> 02	1		1
	RES/DSIR/EIB	1		1	RGN2 FILE 01	1		1
EXTERNAL:	EG&G BRYCE, J.H	3		3	L ST LOBBY WARD	1		1
	NRC PDR	1		1	NSIC MAYS, G	1		1
	NSIC MURPHY, G.A	1		1	NUDOCS FULL TXT	1		1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK,  
 ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION  
 LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED  
 TOTAL NUMBER OF COPIES REQUIRED: LTR    33    ENCL    33

R  
I  
D  
S  
/  
A  
D  
D  
S  
  
R  
I  
D  
S  
/  
A  
D  
D  
S



JAN 14 1991  
L-91-19  
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: 90-06  
Date of Event: December 19, 1990  
Inadvertent Actuation of Auxiliary Feedwater Equipment  
During Monthly Testing Due to Test Instrument Malfunction

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,

D. A. SAGER

By

A. G. Bony

D. A. Sager  
Vice President  
St. Lucie Plant

DAS:GRM:kw

Attachment

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

DAS/PSL #330

9101180078 910114  
PDR ADOCK 05000389  
S PDR

180022 an FPL Group company

IFPP  
11

# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>St. Lucie Unit 2</b>	DOCKET NUMBER (2) <b>05000389</b>	PAGE (3) <b>1 OF 4</b>
--	--------------------------------------	---------------------------

TITLE (4) **INADVERTENT ACTUATION OF AUXILIARY FEEDWATER EQUIPMENT DURING MONTHLY TESTING DUE TO TEST INSTRUMENT MALFUNCTION**

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)
1	2	1990	90	006	00				N/A		0510101

OPERATING MODE (9) <b>1</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check one or more of the following) (11)									
POWER LEVEL (10) <b>1 0 0</b>	20.402(b)		20.405(c)		<input checked="" type="checkbox"/>	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)		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)

NAME <b>M. W. Wolaver, Shift Technical Advisor</b>	TELEPHONE NUMBER
	AREA CODE
	<b>4 0 7 4 6 5 - 3 5 5 0</b>

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
X		E	H   1   6   5	N					

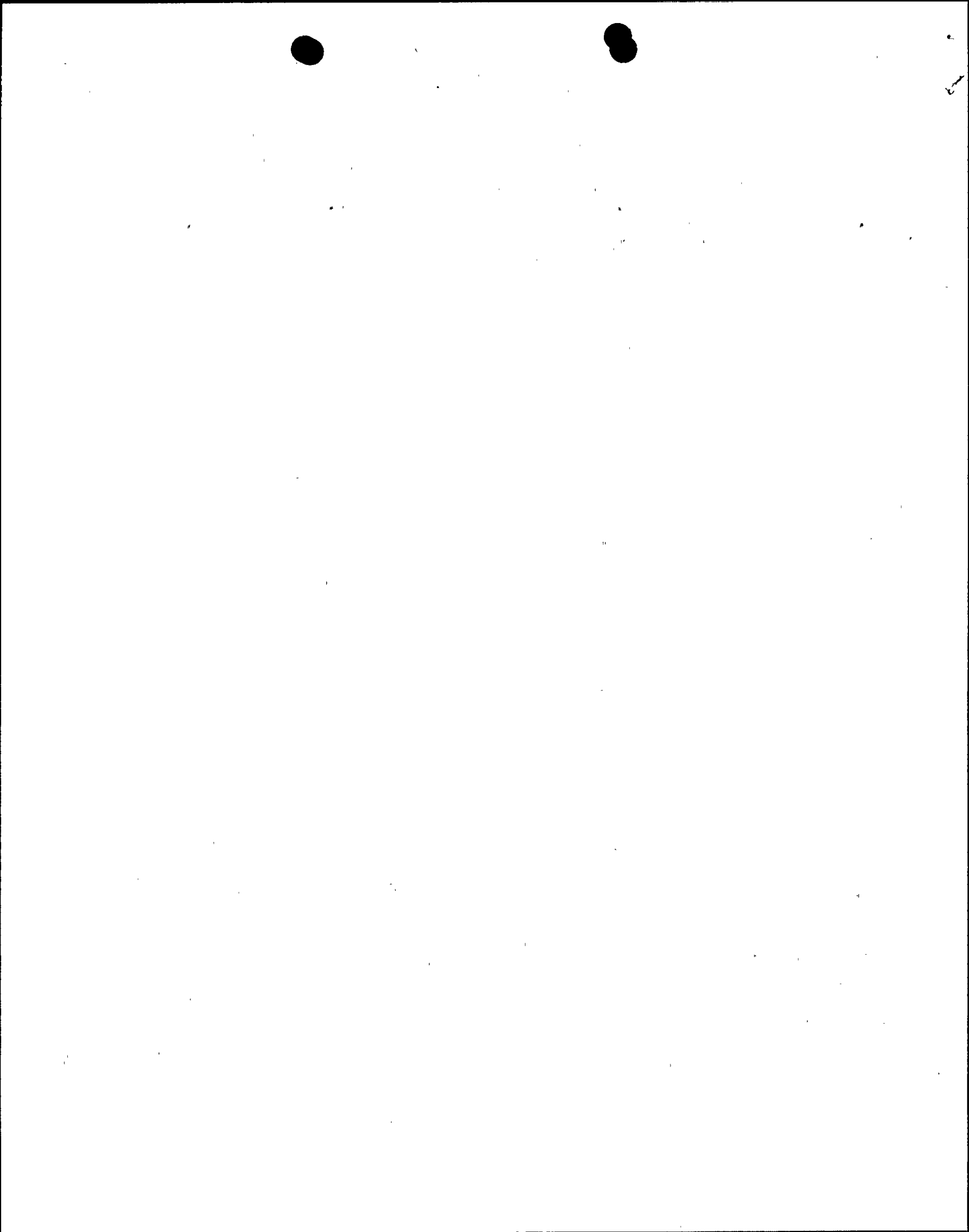
SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO					

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

On December 19, with Unit 2 in Mode 1, at 100% following a refueling outage, an inadvertent actuation of Auxiliary Feedwater (AFW) System equipment occurred during Monthly Functional Testing. The 2B AFW pump was started and the steam admission valve from the 2A steam generator to the 2C AFW pump was opened, starting the turbine-driven pump. Testing was suspended and the AFW pumps were restored to their normal status. No AFW was injected into the steam generators.

The root cause of the event was equipment failure. The digital voltmeter being used for the testing developed an intermittent internal fault, causing a loss of the AFW actuation relay holding current.

Corrective Actions: The details of the event and the troubleshooting plan were reviewed by the Facility Review Group. The testing was completed satisfactorily using a floating, ungrounded meter. The Instrument and Control testing procedure was revised to include a cautionary note for using the floating, ungrounded meter in the future. Instrument and Control personnel were notified of the changes in the test procedure.



FACILITY NAME (1)  St. Lucie Unit 2	DOCKET NUMBER (2)  05000389	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		90	006	00	02	OF	04

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

**DESCRIPTION OF THE EVENT**

On December 19, Unit 2 was in Mode 1, at 100%. The Unit had just reached full power following a refueling outage. Instrument and Control (I&C) personnel were performing the Auxiliary Feedwater Actuation System (AFAS) (EISS:BA) Monthly Functional Testing as per I&C procedure 2-0700051. The I&C personnel were in the process of checking voltages on auctioneered DC power supplies for the AFAS actuation channels. At 0827, while attaching their voltmeter leads to the specified terminals on channel B, the technicians heard relays inside the cabinet change state. The test leads were immediately removed and the Trip Status lights and the Lockout Status lights were observed to be lit. Also, at this time, the Operations crew received several AFAS related annunciations (EISS:IB) and noted that the 2B Auxiliary Feedwater (AFW) pump had started and that the steam admission valve from the 2A steam generator (EISS:SB) to the 2C AFW pump had opened. The discharge valves for these pumps remained closed. The Operations crew immediately instructed I&C personnel to halt testing and began to investigate Plant status. The Plant was stable at 100%.

The Facility Review Group met to discuss the I&C plan for troubleshooting. The troubleshooting plan included steps to preclude the fast closure of the Main Feedwater Isolation Valve, since this occurrence would cause serious Plant perturbations. It was decided that the testing would be performed again, using the troubleshooting plan, in an effort to pinpoint the event cause. At 2144, after successfully completing channel B, I&C personnel again caused relays to change state in channel C. Upon hearing the relays change state, the leads were removed. There were no changes in the Plant configuration and testing was halted.

**CAUSE OF THE EVENT**

The root cause of this event was a loss of the holding field current to the equipment actuation relays inside the AFAS cabinet. The loss of field current was caused by an intermittent grounding fault inside the digital voltmeter used for the testing. The test meter was of the type specified in the AFAS vendor Technical Manual and had been used for this application many times in the past. However, it was determined that the use of an external power supply for the meter may have introduced the possibility of this fault. By using the internal power supply for the meter (batteries), there is no possibility of an external ground influencing the meter ground. The vendor Technical Manual does not specify use of an internally powered voltmeter.

The testing was initiated once again following the second occurrence. The voltmeter was left on batteries and the test was performed with no problems.

FACILITY NAME (1)  St. Lucie Unit 2	DOCKET NUMBER (2)  0500038990	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
			006	00	03	OF

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

**ANALYSIS OF THE EVENT**

This event is reportable under the requirements of 10CFR50.73.a.2.iv as an event that resulted in manual or automatic actuation of any Engineered Safeguards Feature.

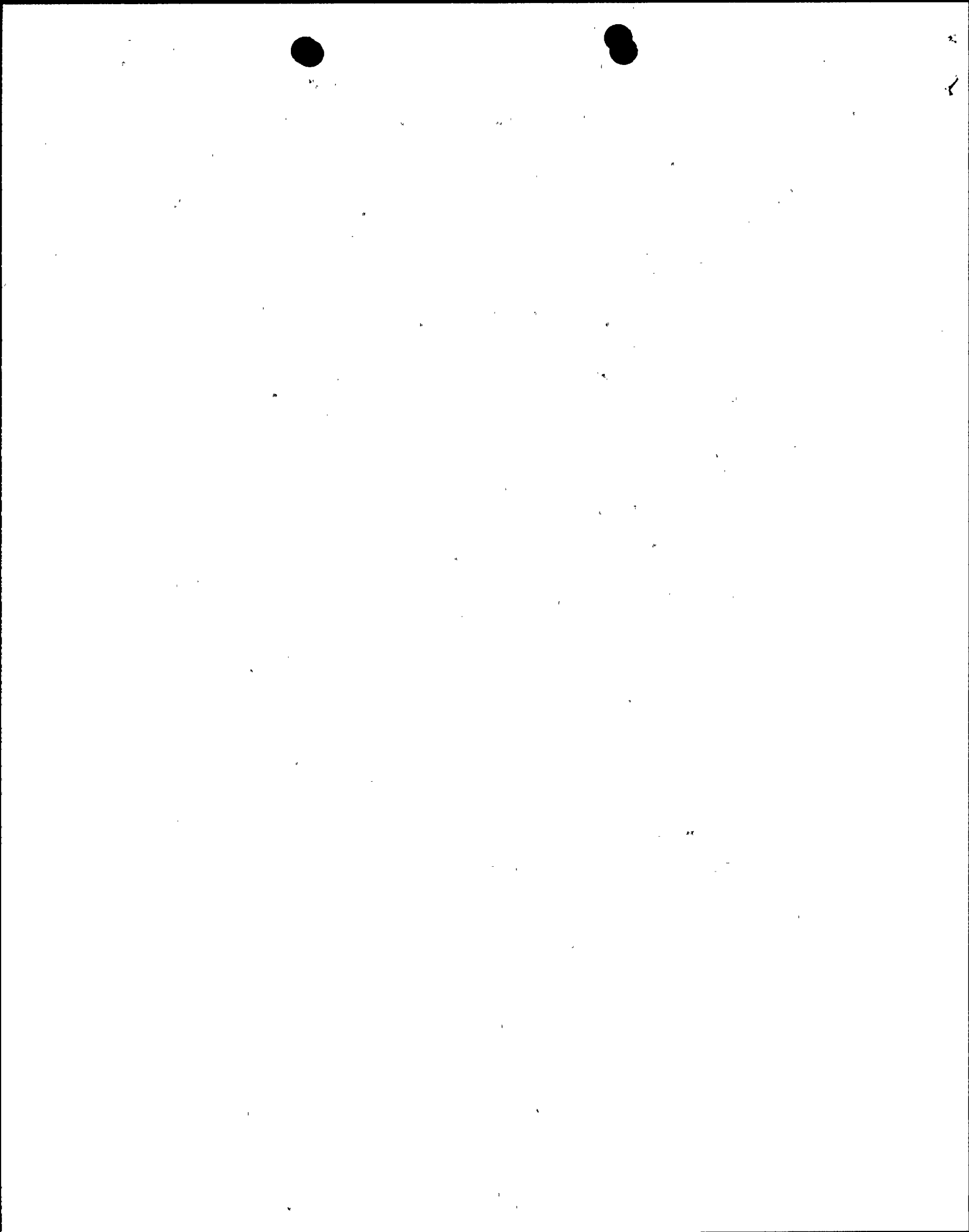
The power supplies for channel B are configured such that the B power supply is auctioneered with the A power supply. The step in I&C procedure 2-0700051 at which both parts of this event occurred concerns the measuring of auctioneered power supply voltages. This was the reason for connecting the voltmeter.

"Latching" relays are designed to change states and then remain in that state. "Cycling" relays are designed to cycle between states. In channel B, the 2B AFW pump and the 2C AFW pump steam admission valve are actuated using latching relays. When the current was interrupted, both latching and cycling relays changed state. However, the interruption was so short that the cycling relays reset before any equipment could actuate. Since the 2B and 2C AFW pump discharge valves are controlled with cycling relays, there was no injection of auxiliary feedwater. The Plant continued to operate unaffected, despite the start of the pumps. In channel C, there is no Plant equipment that is actuated by latching relays. Since the rapid current interruption precluded equipment start from cycling relays, there was no change in equipment status.

At no time during this event was the AFAS unable to perform its intended safety function. Thus, the health and safety of the public were not at risk at any time during this event.

**CORRECTIVE ACTIONS**

1. The Operations crew immediately instructed I&C personnel to discontinue testing, identified equipment that was not in normal alignment, and restored the Plant to its previous alignment.
2. I & C personnel discovered the intermittent fault in the digital voltmeter during troubleshooting and successfully performed the remainder of the AFAS testing.
3. The I & C testing procedure for Auxiliary Feedwater is being revised to include cautionary notes for the use of an internally powered voltmeter. Personnel have been notified of the importance of this procedure change.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  St. Lucie Unit 2	DOCKET NUMBER (2)  05000389	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		90	006	00	04	OF 04

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

**ADDITIONAL INFORMATION**

Failed Component Identification:

HEWLETT PACKARD DIGITAL VOLTMETER MODEL NO. 3468B

Previous Similar Events:

NONE