

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8705180203      DOC. DATE: 87/05/09      NOTARIZED: NO      DOCKET #  
 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co.      05000389  
 AUTH. NAME      AUTHOR AFFILIATION  
 MENDOZA, V. N.      Florida Power & Light Co.  
 WOODY, C. O.      Florida Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 87-003-00: on 870409, during troubleshooting, jumper placed on wrong terminal of main steam isolation signal (MSIS) actuation pushbutton circuitry causing actuation of MSIS. Caused by cognitive personnel error. W/870511 ltr.

DISTRIBUTION CODE: IE22D      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT		COPIES			RECIPIENT		COPIES	
	ID CODE/NAME		L	E		ID CODE/NAME		L	E
	PD2-2 LA		1	1		PD2-2 PD		1	1
	TOURIGNY, E		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	DEORD		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/QAB		1	1	
	NRR/DOEA/EAB		1	1	NRR/DREP/EPB		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 SPEIS, T		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: LTR 43 ENCL 41

LICENSEE EVENT REPORT (LER)

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

TITLE (4) Reactor Trip Due to Inadvertent Actuation of Main Steam Isolation Signal Due to Personnel Error

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 4	0 9	8 7	8 7	0 0 3	0 0	0 5	0 9	8 7	N/A		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	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)							
	<input type="checkbox"/> 20.406(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)							
	<input type="checkbox"/> 20.406(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)							
	<input type="checkbox"/> 20.406(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)								
	<input type="checkbox"/> 20.406(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)								
	<input type="checkbox"/> 20.406(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12)						TELEPHONE NUMBER					
NAME V. N. Mendoza, Shift Technical Advisor						AREA CODE 3 0 5 4 6 5 0 3 5 5 1 0					

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)										
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS
X	S B	R V	C 7 1 0	N		X	I B	A N N	X 9 9 9	N
X	B A	6 5	W 2 9 0	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			N/A		

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

**ABSTRACT:**

On April 9, 1987, Instrument and Control maintenance personnel were performing monthly surveillance testing of the Engineered Safety Features Actuation System. During the testing process, it was noted that the annunciator P-18 did not illuminate. After the completion of the test, I & C personnel started to troubleshoot and during the troubleshooting sequence, a jumper was placed on the wrong terminal of the MAIN STEAM ISOLATION SIGNAL (MSIS) actuation pushbutton circuitry causing the actuation of a MSIS which resulted in the closure of the Main Feedwater Isolation Valves and the Main Steam Isolation Valves. This resulted in an automatic reactor trip due to low steam generator level.

The root cause of the event was a cognitive personnel error of I & C personnel placing a jumper on the wrong terminal of the MSIS pushbutton circuitry due to misinterpretation of the circuit wiring diagram.

The personnel involved were counseled and information will be forwarded to the plant training department for evaluation.

8705180203 870509  
PDR ADOCK 05000389  
S PDR

JE22  
111

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) St. Lucie Unit 2	DOCKET NUMBER (2) 0   5   0   0   0   3   8   9   8   7	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
			-   0   0   3	-   0   0	0   2	OF	0   4

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

**DESCRIPTION OF EVENT:**

On April 9, 1987, ST. LUCIE UNIT II was at Mode 1, 100% power and at steady state conditions. Instrument and Control (I&C) maintenance personnel were performing a monthly surveillance test of the Engineered Safety Features Actuation System (ESFAS) (EIS:JE). Part of the channel functional test is the block matrix functions check for the Safety Injection Actuation Signal (SIAS) block and the Main Steam Isolation Signal (MSIS) block. The SIAS block matrix functional check was completed satisfactorily. While performing the MSIS channel "A" block, it was noted that annunciator P-18 did not illuminate as required.

At approximately 2115 hours, I&C personnel started troubleshooting annunciator P-18 by first studying the correct Circuit Wiring Diagram (CWD) to determine whether the problem was in the annunciator circuitry or in the main safeguards circuitry. After a study of the CWD, I&C personnel concluded that they needed to place a temporary jumper across terminal points 4 & 5 of terminal block TB 574 to test the annunciator. At approximately 2130 hours, the jumper was placed and the MSIS was actuated. The Main Feedwater Isolation Valves (MFIV) shut and the Main Steam Isolation Valves (MSIV) shut. The Reactor automatically tripped on low Steam Generator (S/G) level at 2131 hours. Plant system responses were normal with the exception that one of the Main Steam Safety Valves (MSSV) did not immediately fully reseal. The MSSV was only slightly open and did not produce a noticeable cooldown rate. The valve was fully closed after approximately eight minutes by operator action to reduce the S/G pressure. This was done by opening the Atmospheric Dump Valves to reduce S/G pressure, thus allowing the MSSV to reseal.

The 2C Auxiliary Feed Water (AFW) Pump tripped on overspeed but was restarted without any problems. AFW Pumps 2A & 2B were functioning properly.

The plant was maintained at stable conditions. This event was observed to be a normal Reactor trip.

**CAUSE OF EVENT:**

Instrument & Control maintenance personnel unintentionally placed a jumper across terminals 4 & 5 of terminal block TB 574 which actuated the MSIS pushbutton causing an MSIS S/G 2A actuation. The actuation of the MSIS caused the MFIV's and the MSIV's to shut and resulted in an automatic Reactor trip due to low S/G level. The root cause of the event was a cognitive personnel error due to misinterpretation of the CWD. A contributing factor was that the labeling of the terminals on the CWD was ambiguous. There were no procedure deficiencies nor any unusual characteristics of the work location that directly contributed to this personnel error.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  St. Lucie Unit 2	DOCKET NUMBER (2)  0 5 0 0 0 3 8 9	LER NUMBER (8)			PAGE (3)	
		YEAR 8 7	SEQUENTIAL NUMBER 0 0 3	REVISION NUMBER 0 0	0 3	OF 0 4

TEXT (If more space is required, use additional NRC Form 365A's) (17)

**ANALYSIS OF EVENT:**

The event is reportable under 10 CFR 50.73 (a) (2) (iv), "any event or condition that results in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protective System (RPS)." The RPS trip on low Steam Generator (S/G) level was observed to be an uncomplicated trip in which all safety functions were met. The RPS low S/G level trip is designed to prevent Reactor operation with S/G water level below the minimum volume required for heat removal, ensuring that the design pressure of the Reactor Coolant System (RCS) will not be exceeded due to loss of S/G heat sink. The trip setpoint provides enough allowance to ensure that there will be sufficient water inventory in the Steam Generators at the time of the trip to provide the necessary heat removal capability. The Auxiliary Feedwater Actuation System (AFAS) was working as expected. Auxiliary Feed Water (AFW) Pumps 2A, 2B and 2C started as required although the AFW Pump 2C tripped on overspeed but subsequent restart was successful. At no time during the event was a S/G unable to perform its safety function. ST. LUCIE UNIT II experienced another Reactor trip on April 22, 1987 and the AFW Pump 2C started and did not trip on overspeed upon starting. The last 2C AFW Pump overspeed trip during a Reactor trip transient was in 1984.

Another aspect of the event was that one of the Main Steam Safety Valves (MSSV) remained partially open for approximately eight minutes. Operations personnel were cognizant of the situation and performed the required actions to reduce the S/G pressure to allow the MSSV to reclose. RPS logic matrix test, Main Feedwater Isolation Valves and Main Steam Isolation Valves full stroke tests were performed and noted as successful. No Radiation Monitor alarms were observed. At no time during the event was the health and safety of the public endangered and no plant safety functions were compromised.

**CORRECTIVE ACTIONS:**

1. The erroneous jumper was immediately removed.
2. The personnel involved were counseled to carefully study and understand the circuit wiring diagram.
3. Auxiliary Feed Water Pump 2C was restarted successfully, without any problems.
4. The plant training department will evaluate this item to determine appropriate training requirements and methods.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		
		8 7	- 0 0 3	- 0 0	0 4	OF 0 4

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

ADDITIONAL INFORMATION:

Failed Component Identification:

Auxiliary Feed Water Pump 2C:

Manufacturer: Terry Corporation  
Serial No.: T-40230-A  
Type: GS-2N

Auxiliary Feed Water Pump 2C Governor:

Manufacturer: Woodward  
Model No.: PG-PL

Main Steam Safety Valve:

Manufacturer: Crosby Valve and Gage Company  
Style: HA-55-FN  
Assy. No.: 59335  
Size: 6 X 10

Initial Problem:

Annunciator Circuit:

Manufacturer: The problem has not yet been isolated to determine the specific component.

PREVIOUS SIMILAR EVENT:

For a previous Main Steam Isolation Valve (MSIV) closure event, see LER #389-85-07.

**FPL**

MAY 11 1987

L-87-204

May 11, 1987

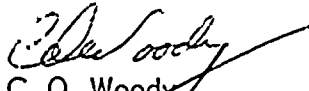
U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

Re: St. Lucie Unit 2  
Docket No. 50-389  
Reportable Event 87-03  
Reactor Trip Due to Inadvertent  
Actuation of Main Steam Isolation  
Signal Due to Personnel Error

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

Very truly yours,

  
C. O. Woody  
Group Vice President  
Nuclear Energy

COW/MSD/pm

Attachment

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

LE22  
11

MSD1/026/1

an FPL Group company