NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

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

TITLE (4)

Reactor Trip By Low Steam Generator Water Level 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 6	0 4	8 6	8 6	— 0 1 0	— 0 0	0 7	0 7	8 6	N/A	0 5 0 0 0
										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)	0 0 5	20.402(b)	20.405(c)	X	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	TELEPHONE NUMBER
	AREA CODE
Kulavich, R. L. - Technical Advisor	3 0 5 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
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On June 4, 1986, during post-outage turbine overspeed testing, a reactor trip occurred at five percent rated power as a result of low steam generator water level. The unit was immediately stabilized in hot standby using the main feed system and the steam bypass control system. No component or system failures occurred during the event.

The cause of the event was ineffective manual control of the steam generator water levels during low power operation.

A group training session was conducted for the control room crew regarding the sensitive nature of manual steam generator water level control during low power operations.

IE22
1/1

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

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

EVENT The event occurred on June 4, 1986, at 1721, EDT. The reactor was in Mode 1 at five percent rated thermal power. The unit had been returned to service on June 3 following a refueling outage and turbine overhaul. The unit generator was off-line to perform a post-overhaul turbine overspeed test (EIIS:TG) (Reference: Technical Specification 4.3.4.2c and Operating Procedure 2-0010133, Power Ascension Program, step 8.13.11). The feedwater control system (EIIS:JB) was being operated in the manual mode to maintain the steam generator levels within the normal band for low power operation.

The turbine overspeed test was performed satisfactorily at 1719 and the turbine was re-latched at 1720 to return to power operation. The turbine operations caused steam generator level perturbations. The utility licensed operator controlling the steam generator levels was not able to alleviate the disturbance prior to the "B" steam generator level dropping to the reactor trip setpoint. The reactor protection system (EIIS:JC) initiated a reactor trip at 1721. The plant was restored to their normal post-trip levels using the main feed system (EIIS:SJ) and reactor coolant temperature was controlled using the steam bypass system (EIIS:JI) to the main condenser (EIIS:SG). The auxiliary feedwater system (EIIS:BA) was not actuated because the steam generator levels did not decrease to the auxiliary feedwater set point. No component or system failures occurred during this event. A post-trip review was conducted and the control room crew reviewed the event for training. The reactor was restarted at 2240. The subsequent start-up was without problems.

CAUSE OF EVENT The root cause of this event was a cognitive personnel error by a utility licensed operator. The operator was unable to maintain the steam generator levels within the allowable band in accordance with normal low power operating practice. It should be noted that the steam generator water levels are difficult to control at low power and that steam plant operations cause steam generator level perturbations which easily escalate to reach the reactor trip setpoint. This is a known, recurring problem and is the subject of both initial license qualification and the operator re-qualification program.

ANALYSIS OF EVENT This event was evaluated for safety considerations and deemed not to be of significance because:
(1) Although the steam generator low level reactor trip setpoint was reached, the steam generator levels were recovered immediately using the main feed system. The levels did not lower to the Auxiliary Feedwater Actuation setpoint and at no time was the integrity of the secondary heat sink threatened.
(2) The plant was immediately stabilized in hot standby.

This event was evaluated for safety implications if the sequence of events had initiated at higher power level:
(1) The feedwater control system is operated in the automatic mode at power levels greater than about fifteen percent; at those power levels the degree of difficulty in controlling steam generator level is somewhat reduced and the probability of a reactor trip is lower.
(2) Had this event occurred at a higher power level, the steam generator level may have decreased to the Auxiliary Feedwater Actuation System setpoint. The St. Lucie Unit 2 Final Updated Safety Analysis Report states that the safety consequences of a total loss of feedwater event and resulting low steam generator levels would be no more adverse than the loss of condenser vacuum event, which is demonstrated to result in a safe shutdown condition.

CORRECTIVE ACTIONS The control room operators held a group discussion of the sequence of events and performed a self-critique on their individual actions which contributed to the reactor trip. It is generally agreed that the operator's experience level in actual "hands on" control of the steam generator levels has been a contributing factor in similar events . The plant-specific simulator under construction for plant St. Lucie will provide the opportunity for additional "hands-on" operator training in the area of manual feedwater control. Additionally, the St. Lucie Training Department will evaluate this event to determine appropriate training requirements and methods.

ADDITIONAL INFORMATION

FAILED COMPONENT INFORMATION:
No component or system failures occurred during this event.

PREVIOUS SIMILAR EVENTS:
LER 335-86-004 (St. Lucie, Unit 1) Reported a reactor trip due to high steam generator water level during manual level control.

FPL

FLORIDA POWER & LIGHT COMPANY

JUL 7 1986

L-86-272

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

Gentlemen:

Re: **Reportable Event 86-10**
St. Lucie Unit #2
Date of Event: June 4, 1986
Reactor Trip By Low Steam Generator Water Level Due To Personnel Error

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

Very truly yours,

C. O. Woody
Group Vice President
Nuclear Energy

COW/SAV/eh

Attachment

cc: Dr. J. Nelson Grace, Region II, USNRC
Harold F. Reis, Esquire
File 933.1
PNS-LI-86-207

IE22
1/1

L1:1bu

PEOPLE . . . SERVING PEOPLE