

## LICENSEE EVENT REPORT (LER)

PLANT NAME (1)										DOCKET NUMBER (2)										PAGE (3)																																							
ST. LUCIE, UNIT 2										0 5 0 0 0 3 1 8 9										1 OF 0 3																																							
TITLE (4)																																																											
REACTOR TRIP BY LOW STEAM GENERATOR LEVEL																																																											
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 NAME										DOCKET NUMBER (9)																						
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OPERATING MODE (10)										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 43.11 (Check one or more of the following) (11)																																																	
1										<table border="1"><tr><td>20.402(a)</td><td>20.402(a)</td><td>X</td><td>20.73(a)(3)(iv)</td><td>73.71(a)</td></tr><tr><td>20.402(a)(1)(ii)</td><td>20.302(a)(1)</td><td></td><td>20.73(a)(3)(v)</td><td>73.71(a)</td></tr><tr><td>20.402(a)(1)(iii)</td><td>20.302(a)(2)</td><td></td><td>20.73(a)(3)(vi)</td><td>OTHER (Specify in Abstract below and in Part, NRC Form 206A)</td></tr><tr><td>20.402(a)(1)(iv)</td><td>20.73(a)(2)(i)</td><td></td><td>20.73(a)(3)(vii)(A)</td><td></td></tr><tr><td>20.402(a)(1)(v)</td><td>20.73(a)(2)(ii)</td><td></td><td>20.73(a)(3)(vii)(B)</td><td></td></tr><tr><td>20.402(a)(1)(vi)</td><td>20.73(a)(2)(iii)</td><td></td><td>20.73(a)(3)(viii)</td><td></td></tr></table>																				20.402(a)	20.402(a)	X	20.73(a)(3)(iv)	73.71(a)	20.402(a)(1)(ii)	20.302(a)(1)		20.73(a)(3)(v)	73.71(a)	20.402(a)(1)(iii)	20.302(a)(2)		20.73(a)(3)(vi)	OTHER (Specify in Abstract below and in Part, NRC Form 206A)	20.402(a)(1)(iv)	20.73(a)(2)(i)		20.73(a)(3)(vii)(A)		20.402(a)(1)(v)	20.73(a)(2)(ii)		20.73(a)(3)(vii)(B)		20.402(a)(1)(vi)	20.73(a)(2)(iii)		20.73(a)(3)(viii)	
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																											
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YES (If yes, complete EXPECTED SUBMISSION DATE)																				NO																																							
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ABSTRACT (Limit to 1,000 words, i.e., approximately fifteen single-spaced typewritten lines) (16)

## EVENT:

While in Mode-1, at 10 percent power, a reactor trip occurred as a result of low steam generator water level. All systems functioned normally, and the plant was quickly stabilized in hot standby. The health and safety of the public was not affected.

## CAUSE OF THE EVENT:

The cause of the event is attributed to ineffective communication between the Control Room operators in the process of power ascension. Low steam generator water levels were the result of increasing turbine steam demand and feedwater flow inadequate to accommodate the increase.

## CORRECTIVE ACTIONS:

As corrective action, St. Lucie will promptly disseminate a copy of the text of this report to the Operations Staff, and make this event a part of its annual licensed operator training and requalification.

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

APPROVED OMB NO. 3150-0104  
EXPIRES 8/31/85

FACILITY NAME (1)  ST. LUCIE, UNIT 2	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 388A's) (17)

EVENT:

On April 8, 1985, at approximately 0230 hours, the control room crew of St. Lucie Plant's Unit 2 was attempting to bring the unit back on line following a short outage for steam generator maintenance. A few minutes after entry into Mode 1, while attempting to synchronize the main generator with the grid, the Reactor Protection System (RPS) received low steam generator water level signals from the 2A steam generator (SG) and initiated a reactor trip. All systems functioned normally, and the unit was quickly stabilized in hot standby.

Prior to criticality, an Instrument and Control Technician informed the Nuclear Plant Supervisor (NPS) that the turbine control system (DEH) might not pick up load upon synchronization and advised that the turbine be loaded quickly to avoid the possibility of motorizing the main generator. The NPS advised the operator at the turbine/generator (TG) controls to initially load at a rate of 30 MWe/min. In accordance with approved procedures, an operator had taken manual control of the feedwater system and was supplying the steam generators via the 15 percent bypass valves.

When the generator was first synchronized to the grid, it did not appear to be taking on load. The NPS then instructed the TG operator to program the DEH for a load rate of 50 MWe per minute. The TG operator programmed the new load rate and a limit-hold point of 150 MWe. The turbine responded to the new load rate and began an increasing steam demand on the SG's.

Upon initiation of the second load rate the operator in control of the feedwater system noted a swell in SG levels resulting from the slight SG depressurization he expected when the turbine valves opened. To accommodate the swell the operator momentarily restricted flow to the SG's by closing down on the 15 percent bypass valves. When it had appeared to the operator that the SG levels had peaked from swell, he reopened the bypass valves in anticipation of level decline due to cooling. The combined effect of the increasing steam demand by the turbine and the addition of feedwater resulted in a rapid cooling of the steam generator and a corresponding shrink in SG levels.

When SG levels had dropped to approximately 50 percent, the NPS suspected the SG's were over cooling and instructed the TG operator to slow the load rate to 30 MWe per minute. The TG operator instead put the turbine load rate in hold at approximately 100 MWe. At this point SG levels had declined to approximately 45 percent and were beginning to level out. The sudden stop in load rate quickly increased the SG pressures and produced a shrink sufficient to drop the level of the 2A generator below the 39 percent RPS setpoint. The SG operator quickly restored SG levels while the other operators carried out immediate actions of the reactor trip procedure. The unit was stabilized in hot standby and no radiation was released.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  ST. LUCIE, UNIT 2	DOCKET NUMBER (2)  -	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 385A's) (17)

CAUSE OF EVENT:

The cause of the event is attributed to a personnel error which was the result of ineffective communication between the NPS and TG operator. At a critical moment when the SG levels were still declining the instructions by the NPS to the TG operator to slow the load rate were misinterpreted by the TG operator who then placed the turbine load on hold.

SAFETY ASSESSMENT:

As evidenced by this event, good communication and coordination between the operators themselves and their supervisor are essential to effect a smooth transition to power operation. The combination of conditions and actions which produced this event are unlikely in any evolution other than restart of the plant.

Steam generator level is particularly sensitive to changes in reactor and turbine power at low power levels. After synchronizing the generator and proceeding to approximately 15 percent power, feedwater flow is redirected through the main feedwater regulating valves and placed under automatic control.

When at power operation, turbine power is normally controlled by preprogrammed load change rates to a specific load hold point.

With respect to the feedwater regulating system, on initiation of a turbine trip the main feedwater regulating valves automatically close and the 15 percent bypass valves position themselves to accommodate five (5) percent flow. Since the SG operator was manually controlling feed through the 15 percent bypass valves, the main feedwater regulating valves were already closed, and the signals to the bypass valves functioned normally.

CORRECTIVE ACTIONS:

Short term corrective action plans include dissemination of a copy of this report to the operations staff with a letter stressing the importance of good communications during delicate or sophisticated evolutions, as well as in routine plant operation. Permanent plans include incorporation of this event in the annual licensed operator requalification program. This is the first LER of this type.



MAY 8 1985

L-85-181

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

Gentlemen:

Re: Reportable Event 85-1  
St. Lucie Unit 2  
Date of Event: April 8, 1985  
Reactor Trip by Low Steam Generator Level

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,

*J. W. Williams, Jr.*  
for J. W. Williams, Jr.  
Group Vice President  
Nuclear Energy

JWW/SAV/js

Attachment

cc: Dr. J. Nelson Grace  
Harold F. Reis, Esquire  
File 933.1  
PNS-LI-85-182v

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