

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 3									
TITLE (4) Reactor Trip on Turbine Trip by High Steam Generator Water 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 NAMES N/A				DOCKET NUMBER(S) 0 5 0 0 0										
0	4	0	8	8	5	8	5	0	0	2	0	0	0	5	0	8	8	5	0	5	0	0	0
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §. (Check one or more of the following) (11)																					
1		20.402(b)				20.406(e)				<input checked="" type="checkbox"/> 50.73(e)(2)(iv)		73.71(b)											
POWER LEVEL (10)		0 1 1 5				20.406(e)(1)(i)				50.73(e)(2)(v)		73.71(e)											
		20.406(e)(1)(ii)				50.36(e)(2)				50.73(e)(2)(vi)		OTHER (Specify in Abstract below and in Text NRC Form 388A)											
		20.406(e)(1)(iii)				50.73(e)(2)(i)				50.73(e)(2)(vii)(A)													
		20.406(e)(1)(iv)				50.73(e)(2)(ii)				50.73(e)(2)(viii)(B)													
		20.406(e)(1)(v)				50.73(e)(2)(iii)				50.73(e)(2)(ix)													
LICENSEE CONTACT FOR THIS LER (12)																							
NAME C. L. Narmi, Shift Technical Advisor										TELEPHONE NUMBER AREA CODE 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 NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC													
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)

EVENT:

While in Mode-1, at 15 percent power, a reactor trip occurred when the 2A main feedwater block valve was opened which precipitated an equipment protective turbine trip by high steam generator level. The turbine trip subsequently produced a Reactor Protection System actuation by loss of load which initiated the reactor trip. The main feedwater block valve was closed to reduce flow and steam generator water levels were normalized with auxiliary feedwater while the plant was stabilized in hot standby. The health and safety of the public was not affected.

CAUSE OF THE EVENT:

The cause of the event was a combination of personnel errors made by maintenance and operations personnel. Maintenance contributed to the event by improper restoration of the air operated main feedwater regulating valve's air supply following a stroke test of the valve actuator. Operations contributed by not verifying proper operation of the feedwater regulating valve following the stroke test by maintenance.

CORRECTIVE ACTION:

A copy of the text of this report will be promptly disseminated to the operations and instrument and control staffs. Permanent corrective action plans include a change to the startup procedure to include a visual verification of proper regulating valve operation before use. This event will also become a subject of the annual licensed operator requalification program.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES 8/31/85

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

TEXT (If more space is required, use additional NRC Form 388A-1 (17))

EVENT:

On April 8, 1985, at approximately 0800 hours, a reactor trip occurred when the turbine generator (TG) tripped by high steam generator water (SG) level.

The power ascension during which the trip occurred followed a short outage for steam generator maintenance. During the outage Mechanical Maintenance completed plug and seat work on the 2A Main Feedwater Regulating Valve (MFRV) and returned the valve to operations. Prior to reactor restart Operations requested Instrument and Control (I&C) maintenance perform a valve stroke test to verify valve travel. I&C responded and verified proper stroke by temporarily connecting an air supply directly to the actuator cylinder taps and alternately pressurizing either side of the actuator diaphragm while observing valve stem movement. Following the test I&C restored the air supply connections to their original configuration but, inadvertently failed to open the normal air supply manual isolation valve and, failed to close the actuator equalizing valve. When operations was notified that I&C had successfully completed the stroke test, a valve operability test was not conducted.

A normal reactor startup was made with the feedwater regulating system (JB) in manual control. At approximately 15 percent power, feedwater flow is normally redirected from the 15 percent bypass valves through the main feedwater regulating valves (MFRV). With the 2A MFRV air supply isolated and the actuator cylinder equalizing valve open the MFRV failed open when the block valve was opened. Feedwater flow prior to the transfer was approximately 1,000,000 pounds per hour through the 15 percent bypass valve. After the transfer, flow quickly reached approximately 6,000,000 pounds per hour. The feed control operator noticed a rapidly rising water level in the 2A SG and attempted to reclose the block valve but was unable to when the breaker to the motor operator tripped. SG water level continued to rise to the turbine trip set point of 88 percent.

Upon turbine trip the MFRV's are designed to automatically close and the 15 percent bypass valves open to limit flow to five (5) percent flow. The 2B MFRV and the 2A and 2B bypass valves functioned normally, but the 2A MFRV remained open. Upon high SG water level trip, the main feedwater pumps automatically shut down thus terminating feedwater addition to the S/G. The feedwater operator quickly responded by initiating auxiliary feedwater and attempted to close the 2A MFRV block valve but was unsuccessful when the block valve's motor operator breaker tripped.

The Nuclear Plant Supervisor dispatched another operator to reset the 2A MFRV block valve motor operator breaker. The operator successfully reset the breaker and the block valve was closed. The control room operators stabilized the plant in hot standby without further incident.

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APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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		8 5	0 0 2	0 0	0 3	OF	0 3

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

CAUSE OF THE EVENT:

The cause of the event is attributed to personnel error by maintenance and operations personnel. Maintenance contributed by failing to reopen the MFRV's air supply manual isolation valve and failing to close the actuator cylinder equalizing valve. Operations failed to verify valve operability after maintenance completed their stroke test. The cause is believed to be a matter of oversight by the personnel involved and not the result of a procedural or cognitive error.

SAFETY ASSESSMENT:

Normally, the MFRV's are in service when the plant is operating between 15 and 100 percent power. To place the MFRV's in service a transfer from the 15 percent bypass valves is effected at 15 percent power. As was demonstrated in this case, an inoperable MFRV would be immediately detected and power ascension halted. The unit is protected from a feedwater regulating system failure by the following automatic functions:

For fail closed valve, loss of feedwater flow, the reactor would be shut down by the reactor protection system (RPS) on a S/G low water level of 39 percent. At a S/G level of 20.6 percent auxiliary feedwater (BA) is automatically actuated, thus ensuring the availability of a heat sink for the reactor coolant system (RCS) (AB).

For fail open valve, excessive feedwater flow, an equipment protective turbine trip is generated. Steam generator feed pump trip and MFRV closure are also generated to insure protection from overfeeding the S/G's.

This event was within the design basis of the unit, and no radiation was released, thus the public health and safety was at all times protected.

For previous occurrence, see LER 389-84-003.

CORRECTIVE ACTION:

Short term corrective action plans include dissemination of a copy of the text of this report to the Instrument and Control Maintenance and Operations staffs. Permanent corrective action plans include a change to the startup procedure which will require an operator to visually verify proper valve operation before the valve is placed in service. Additionally, this event will become a subject of the annual licensed operator requalification and training program.



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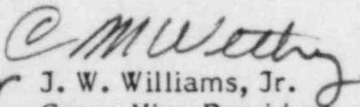
U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Gentlemen:

Re: Reportable Event 85-02
St. Lucie Unit 2
Date of Event: April 8, 1985
Reactor Trip on Turbine Trip by
High Steam Generator Water 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,

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

JWW/SAV/js

Attachment

cc: Dr. J. Nelson Grace, Region II, USNRC
Harold F. Reis, Esquire
File 933.1
PNS-LI-85-190v

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