



January 12, 2000

L-2000-013  
10 CFR § 50.73

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

Re: St. Lucie Unit 2  
Docket No. 50-389  
Reportable Event: 1999-008-00  
Date of Event: December 14, 1999  
Improper Return of RPS Channel Back in  
Service Results in Operation Prohibited by TS

The attached Licensee Event Report 1999-008 is being submitted pursuant to the requirements of 10 CFR § 50.73 to provide notification of the subject event.

Very truly yours,

A handwritten signature in black ink, appearing to read 'J. A. Stall', enclosed in a large, loopy oval.

J. A. Stall  
Vice President  
St. Lucie Nuclear Plant

JAS/EJW/KWF  
Attachment

cc: Regional Administrator, USNRC, Region II  
Senior Resident Inspector, USNRC, St. Lucie Nuclear Plant

Handwritten initials in black ink, possibly 'JES' or similar, located in the bottom right corner of the page.

**LICENSEE EVENT REPORT (LER)**

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>FACILITY NAME (1)</b> St. Lucie Unit 2	<b>DOCKET NUMBER (2)</b> 05000389	<b>PAGE (3)</b> Page 1 of 4
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**TITLE (4)**  
Improper Return of RPS Channel Back in Service Results in Operation Prohibited by TS

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
12	14	1999	1999	- 008	- 00	01	12	2000		
<b>OPERATING MODE (9)</b> 1 <b>POWER LEVEL (10)</b> 100 <b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)</b>										
			20.2201(b)		20.2203(a)(2)(v)		X		50.73(a)(2)(i)	50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)				50.73(a)(2)(ii)	50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)				50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)				50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)				50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)		50.36(c)(2)				50.73(a)(2)(vii)	

**LICENSEE CONTACT FOR THIS LER (12)**

<b>NAME</b> Kenneth W. Frehafer	<b>TELEPHONE NUMBER (Include Area Code)</b> (561) 467 - 7748
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
A	JE	NA	NA	NO	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>				<b>EXPECTED SUBMISSION DATE (15)</b>			<b>MONTH</b>	<b>DAY</b>	<b>YEAR</b>
<b>YES</b> (If yes, complete EXPECTED SUBMISSION DATE).	X	<b>NO</b>							

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

On December 14, 1999, St. Lucie Unit 2 was in Mode 1 operation at 100 percent reactor power. On December 14, 1999, FPL determined that channel "D" of the reactor protection system steam generator low level trip was placed back in service without the post maintenance testing required by a temporary change to procedure 2-OSP-62.02, "RPS Logic Matrix Test."

The cause for this event was human error. Proper oversight was not maintained following the decision to perform the logic matrix test using a temporary change to the logic matrix test procedure.

Upon discovery, FPL performed the required post maintenance testing. Operations personnel were informed of the incident to prevent recurrence.

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St. Lucie Unit 2	05000389	1999	008	00	Page 2 of 4

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

**Description of the Event**

On December 14, 1999, St. Lucie Unit 2 was in Mode 1 operation at 100 percent reactor power. On December 14, 1999, FPL determined that channel "D" of the reactor protection system [EIIS:JE] (RPS) steam generator (SG) low level trips was placed back in service (BIS) without having performed the post maintenance testing (PMT) required by temporary change (TC) 99-163 to procedure 2-OSP-62.02, "RPS Logic Matrix Test."

On December 7, 1999, RPS SG 2A and 2B level trip bypass channel D were placed in bypass due to the level transmitter for 1A SG level [EIIS:JE:SG:LT], LT-9013D, failing high. On December 8, 1999, a one-time TC to 2-OSP-62.02, "RPS Logic Matrix Test," was written to allow for RPS testing with this channel bypassed. Notes were added to the procedure to allow proceeding with the remainder of the RPS system and that PMT for the channel "D" RPS SG 2A and 2B low level trips would be required prior to placing those channels BIS. On December 9, 1999, the logic matrix test was completed satisfactorily. On December 13, 1999, LT-9013D, was declared back in service and the RPS channels associated with LT-9013D were taken from the bypass position and placed to normal. On December 14, 1999, FPL determined that the required PMT was not performed. The required portions of the logic matrix test were completed upon discovery of the deficiency and a Condition Report was initiated.

**Cause of the Event**

The cause for this event was human error. Proper oversight was not maintained following the decision to perform the logic matrix test using a TC to the logic matrix test procedure. On-shift Operations management requested that the TC be drafted and the paperwork for the change was approved by an assisant nuclear plant supervisor (ANPS) and a nuclear plant supervisor (NPS).

On December 9, 1999, upon completion of the RPS logic matrix test, barriers such as the EOOS Log, Data Sheet 29 for deferred surveillance, NPS turnover sheet, etc. should have been used to ensure that the proper PMT was performed prior to declaring the instrument back in service and placing the bypass switch back to normal. Shift supervision actually discussed the use of Data Sheet 29 of OP-2-0010125A, "Deferred Surveillance," to track the surveillance requirements of channel "D" prior to returning it to service. However, this was not done. Failure to use available administrative tools led to this event.

**Analysis of the Event**

This event is reportable under 10 CFR 50.73 (a)(2)(i)(B) as "... any operation or condition prohibited by the plant's Technical Specifications. The applicable Technical Specification 3/4.3.1, "Reactor Protective Devices," action statement was:

"With the number of channels OPERABLE one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may continue provided the inoperable channel is placed in the bypassed or tripped condition within 1 hour."

Contrary to this requirement, LT-9013D was removed from the bypassed condition and placed to normal on December 13. The logic matrix test for this channel had not been completed and the grace period for this surveillance had expired on December 9, 1999. Therefore, RPS channel "D" was not in compliance with the requirements of Technical Specifications.

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

**Analysis of Safety Significance**

The reactor protective system (RPS) consists of sensors, calculators, logic, and other equipment necessary to monitor selected nuclear steam supply system (NSSS) conditions and to effect reliable and rapid reactor shutdown (reactor trip) if any or a combination of the monitored conditions approach specified safety system settings. The RPS functions are to assure that reactor coolant pressure boundary (RCPB) and fuel performance guidelines are not exceeded during moderate frequency events and infrequent events and also to provide assistance in limiting conditions for certain limiting faults. A reactor trip initiated by the RPS causes the input motive power to be removed from the control element drive mechanism control system (CEDMCS) by the trip switchgear, which in turn causes all control element assemblies to be inserted by gravity. The low steam generator water level trip is provided to trip the reactor when the lower of the measured steam generator water levels for the two steam generators falls to a low preset value.

The system is designed such that the single failure criterion and performance requirements are met with three channels in service. A coincidence of any two like trip signals generates a reactor trip signal. However, four measurement channels with electrical and physical separation are provided for each parameter. To enhance plant availability, a fourth channel is provided as a spare and allows bypassing of one channel while maintaining the requisite two-out-of-three logic.

The benefit of a system that includes four independent and redundant channels is that the system can be operated, if need be, with up to two channels out of service (one bypassed and another tripped) and still meet the single failure criterion. The system logic must be restored to at least a three operating channel condition prior to removing another channel for maintenance.

The subsequent surveillance of the RPS "D" channels proved that the RPS channel "D" 2A and 2B SG level trips were operable during the time interval between December 13 and December 14, 1999. However, even if the channel "D" RPS SG 2A and 2B SG level trips were postulated to be inoperable, this condition would not affect the requisite two-out-of-three RPS initiating logic for a SG level trip because no other SG level RPS channels were in bypass or trip during this time period. Therefore, this event had no impact on the health and safety of the public.

**Corrective Actions**

1. The RPS logic matrix test was performed for channel "D" on December 14, 1999, immediately upon discovery the required PMT was not performed.
2. A memo was sent to all Operations management personnel describing this scenario and event. This will allow for the sharing of lessons learned and heighten personnel awareness to this type of attention to detail issue.
3. Training will develop and incorporate this event into the next re-qualification cycle as an in-house industry event.

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**Additional Information**

Failed Components Identified

None

Similar Events

None