



Florida Power & Light Company, 6501 South Ocean Drive, Jensen Beach, FL 34957

August 1, 2001

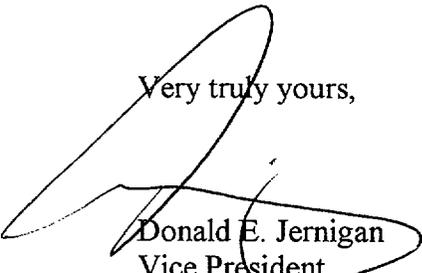
L-2001-174
10 CFR § 50.73

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

Re: St. Lucie Unit 1
Docket No. 50-335
Reportable Event: 2001-007-00
Date of Event: June 5, 2001
Reactor Coolant Pump Trip
Results in Reactor Trip

The attached Licensee Event Report 2001-007 is being submitted pursuant to the requirements of 10 CFR § 50.73 to provide notification of the subject event.

Very truly yours,



Donald E. Jernigan
Vice President
St. Lucie Nuclear Plant

DEJ/EJW/KWF
Attachment

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

IED2

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.

FACILITY NAME (1) St. Lucie Unit 1	DOCKET NUMBER (2) 05000335	PAGE (3) Page 1 of 3
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TITLE (4)
Reactor Coolant Pump Trip Results in Reactor Trip

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
06	05	2001	2001	007	00	08	01	2001		

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)								
POWER LEVEL (10)	100	20.2201(b)			20.2203(a)(3)(ii)			50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
		20.2201(d)			20.2203(a)(4)			50.73(a)(2)(iii)		50.73(a)(2)(x)
		20.2203(a)(1)			50.36(c)(1)(i)(A)			X 50.73(a)(2)(iv)(A)		73.71(a)(4)
		20.2203(a)(2)(i)			50.36(c)(1)(ii)(A)			50.73(a)(2)(v)(A)		73.71(a)(5)
		20.2203(a)(2)(ii)			50.36(c)(2)			50.73(a)(2)(v)(B)		OTHER
		20.2203(a)(2)(iii)			50.46(a)(3)(ii)			50.73(a)(2)(v)(C)		Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)			50.73(a)(2)(i)(A)			50.73(a)(2)(v)(D)		
		20.2203(a)(2)(v)			50.73(a)(2)(i)(B)			50.73(a)(2)(vii)		
		20.2203(a)(2)(vi)			50.73(a)(2)(i)(C)			50.73(a)(2)(viii)(A)		
20.2203(a)(3)(i)			50.73(a)(2)(ii)(A)			50.73(a)(2)(viii)(B)				

LICENSEE CONTACT FOR THIS LER (12)

NAME Kenneth W. Frehafer, Licensing Engineer	TELEPHONE NUMBER (Include Area Code) (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
X	AB	87	W120	-	-	-	-	-	-

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

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

On June 5, 2001, St. Lucie Unit 1 was in Mode 1 at 100 percent reactor power. At 1048 hours, St. Lucie Unit 1 experienced an unexpected trip of the 1A2 reactor coolant pump (RCP). This was immediately followed by an automatic reactor trip from the reactor protection system (RPS) on low reactor coolant flow. The Unit 1 turbine generator tripped following the reactor trip. Plant electrical distribution systems automatically transferred from the unit auxiliary transformers to the unit start up transformers as required for onsite power. Approximately one minute later, the 1B main feedwater pump (MFP) tripped and the auxiliary feedwater system actuated to provide cooling flow to the steam generators. All safety-related equipment operated per design.

FPL determined that the most probable cause of the 1A2 reactor coolant pump trip was the spurious actuation of a Westinghouse SA-1 motor protective relay device. This determination was based on vendor notifications, known industry history, and the symptoms of the trip. FPL replaced the SA-1 relay and a main feedwater recirculation valve positioner, and at power operations for St. Lucie Unit 1 resumed on June 7, 2001.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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

Description of the Event

On June 5, 2001, St. Lucie Unit 1 was in Mode 1 at 100 percent reactor power. At 1048 hours, St. Lucie Unit 1 experienced an unexpected trip of the 1A2 reactor coolant pump [EIIS:AB:P] (RCP). This was immediately followed by an automatic reactor trip from the reactor protection system (RPS) on low reactor coolant flow. The Unit 1 turbine generator tripped following the reactor trip. Plant electrical distribution systems automatically transferred from the unit auxiliary transformers to the unit start up transformers as required for onsite power. Approximately one minute later, the 1B main feedwater pump [EIIS:SJ:P] (MFP) tripped and the auxiliary feedwater system actuated to provide cooling flow to the steam generators. All safety-related equipment operated per design.

Cause of the Event

Although no definitive root cause was found for the RCP trip, FPL determined that the most probable cause was a spurious actuation of the Westinghouse SA-1 motor protective relay device [EIIS:AB:P:87]. This determination was based on vendor notifications, known industry history, and the symptoms of the trip.

The 6900-volt switchgear uses a motor protective relay, SA-1, that provides motor protection for faults less than approximately 50% of the motor locked rotor current. This relay senses the current flow through all three phases of the motor power cables. Any differential in the current flow that exceeds a factory setpoint results in a trip of the motor circuit breaker. This relay responds to motor conditions different than the motor overcurrent relays. It was noted during the review of similar industry events and vendor notifications that the silicon controlled rectified (SCR) in the SA-1 relay was susceptible to random firing. The SCR initiates a trip signal based on a differential current in the motor windings in the three motor phases. Spurious trip signals from the SCR were dependent on "history, ambient temperature, voltage, and time." As a conservative measure, FPL replaced the SA-1 relay. The SA-1 relay that was removed was extensively tested and no problems were found with the removed relay.

The MFP trip was caused when recirculation valve FCV-09-1B2 [EIIS:SJ:FCV] failed to open which resulted in a MFP low flow trip. The faulty valve positioner was replaced with a new positioner.

Analysis of the Event

This event is reportable under 10 CFR 50.73(a)(2)(iv) for two conditions. The first condition is as any event or condition that caused a manual or automatic actuation of the reactor protection system, including reactor scram or trip. The second condition is as any event or condition that caused a manual or automatic actuation of the auxiliary feedwater system.

Analysis of Safety Significance

Reactor trips are analyzed events, and pose no significant safety issues. The trip was uncomplicated, and minor secondary equipment issues were dispositioned. FPL confirmed that Westinghouse SA-1 differential current relays are not used in any safety-related circuits at St. Lucie. Therefore, this event had no adverse impact on the health and safety of the public.

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

Corrective Actions

1. The 1A2 RCP SA-1 relay was replaced and the retest was completed satisfactorily.
2. The valve positioner for FCV-09-1B2 was replaced and the retest was completed satisfactorily.
3. FPL is considering the feasibility of several design alternatives to the SA-1 relays.

Additional Information

Failed Components Identified

Component: Motor Protective Relay Device

Manufacturer: Westinghouse

Model: SA-1

Component: Valve Positioner for FCV-09-1B2

Manufacturer: Moore Industries

Model: 74H/FR

Similar Events

LER 50-335/1997-003, "Automatic Reactor Trip Resulting from the Loss of Electrical Power to the 1A2 Reactor Coolant Pump," documents a similar trip of the 1A2 RCP.