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

FPL

October 10, 2005

L-2005-205
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: 2005-003-00
Date of Event: August 11, 2005
Personnel Error Caused Partial Loss of Feedwater and Manual Reactor Trip

Attached is Licensee Event Report 2005-003. The LER documents an event that occurred at the St. Lucie Nuclear Plant on August 11, 2005. This event is being reported pursuant to the requirements of 10 CFR 50.73(a)(2)(iv)(A).

Please contact Mr. Kenneth Frehafer at (772) 467-7748 if there are any questions regarding this event.

Very truly yours,

William Jefferson, Jr.
Vice President
St. Lucie Nuclear Plant

WJ/KWF

Attachment

IE22

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007
Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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.

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
St. Lucie Unit 2	05000389	Page 1 of 3

4. TITLE

Personnel Error Caused Partial Loss of Feedwater and Manual Reactor Trip

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
08	11	2005	2005	- 003 -	00	10	10	2005	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE: 1

10. POWER LEVEL: 100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Kenneth W. Frehafer, Licensing Engineer	(772) 467 - 7748

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
A	EA	-	-	NO	-	-	-	-	-

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

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

On August 11, 2005, St. Lucie Unit 2 was in Mode 1 operation at 100 percent reactor power. Personnel errors by a non-licensed maintenance supervisor caused a de-energization of two electrical buses which resulted in a partial loss of feedwater event and manual reactor trip based on lowering steam generator levels. The event occurred when the maintenance supervisor opened the incorrect breaker cubicle during an equipment clearance order walkdown, and caused the spurious operation of a lockout relay when the breaker cubicle door was closed. In addition to the manual reactor trip, there were automatic actuations of the A train emergency diesel generator and auxiliary feedwater system. Safety related equipment responded to the event as required. Corrective actions included maintenance stand-downs and training. There were no adverse safety consequences as a result of this event.

Description of the Event

On August 11, 2005, St. Lucie Unit 2 was in Mode 1 operation at 100 percent reactor power. The HVS-1D containment cooler [EIIS:BK:CLR] and the 2C steam-driven auxiliary feedwater (AFW) pump [EIIS:BA:P] were out of service for maintenance. Non-licensed Mechanical Maintenance personnel, a supervisor and journeyman, were walking down an equipment clearance order in preparation for work on the Unit 2 service air compressor. During the equipment clearance order walkdown, the Mechanical Maintenance personnel mistakenly went to and opened the breaker cubicle door for breaker 2-20110 [EIIS:EA:BRK] on the 2A2 4160V bus. Upon opening the door, they discovered that they were not at the breaker they intended to check. When they closed the door, the 2A2 bus differential current bus lockout relay [EIIS:EA:RLY] actuated. The differential lockout relay functioned as designed, deenergizing both vital and non-vital A train 4160V buses. When the vital 2A3 4160V bus was deenergized, the 2A emergency diesel generator automatically started and the 2A3 loads were sequenced on the emergency diesel generator.

The differential lockout of the non-vital 2A2 4160V bus also resulted in a partial loss of feedwater when the loss of the 2A condensate pump [EIIS:SG:P] tripped the 2A main feedwater pump [EIIS:SJ:P]. At 1048 hours, the operators initiated a manual reactor scram due to the lowering steam generator water levels. All rods fully inserted and no steam generator safety valves lifted. The lowering steam generator levels automatically initiated an auxiliary feedwater system actuation signal. All safe shutdown equipment operated as expected. The operators performed standard post-trip actions and stabilized the plant in Mode 3, Hot Standby. Decay heat removal was accomplished by steaming to the main condenser and feedwater to the steam generators was supplied by the main feedwater system.

Although safe shutdown equipment operated as expected, the 5A/5B feedwater heater relief valves [EIIS:SJ:RV] lifted shortly after the reactor trip. Loss of power to the block valves required manual action to isolate main steam to the main steam reheaters (MSRs) to prevent pressuring the 5A and 5B heater via the MSR drain collector drain lines.

At 1340 hours Operations was notified by System Dispatch that computer models predicted that switchyard voltage [EIIS:FK] would drop to less than 230KV upon a postulated loss of St. Lucie Unit 1. As required by procedure, Operations conservatively declared both sources of off-site power out of service and entered the 24-hour allowed outage time (AOT) as specified in Technical Specification 3.8.1.1.d. At 1752 hours, the site exited the Technical Specification action statement when System Dispatch informed the operators that predicted switchyard voltage would remain above 230KV after a postulated trip of St. Lucie Unit 1.

The St. Lucie Unit 2 reactor was taken critical at 0944 hours on August 12, 2005, and full power operation was restored by 0100 hours on August 13, 2005.

Cause of the Event

Operators manually tripped the reactor in response to lowering steam generator levels. The lowering steam generator levels were caused by a partial loss of feedwater resulting from loss of the 2A condensate pump and the 2A main feedwater pump upon the loss of the non-vital 2A2 4160V bus. Non-vital 2A2 4160V bus was automatically deenergized when the 2A2 bus differential lockout relay was inadvertently actuated when the door to the associated breaker cubicle was closed. A Mechanical Maintenance supervisor mistakenly opened the breaker cubicle door while

performing an equipment clearance order walkdown. The supervisor did not confirm he was on the correct component prior to opening the breaker cubicle door.

Analysis of the Event

This event is of regulatory significance because it met the reporting criteria for 10 CFR 50.73(a)(2)(iv)(A) as the actuation of the reactor protection system, the auxiliary feedwater system, and the emergency diesel generators. This event was previously reported in accordance with 10 CFR 50.72 requirements on August 11, 2005 (Event Notification number 41911).

Analysis of Safety Significance

This event was an uncomplicated reactor trip. The unavailability of the 2C AFW pump and the HVS-1D containment fan cooler had no significant affect on the event. There were no human performance issues with respect to operator actions before or after the manual reactor trip. Although for a short amount of time offsite power for both St. Lucie Units 1 and 2 was administratively declared out of service due to system dispatch contingency modeling, voltage at the essential switchgear never fell below required levels. Therefore, this event had no adverse consequences on the health and safety of the public.

Corrective Actions

1. A brief was prepared and distributed to all plant personnel that re-enforced the appropriate human performance tools that should have been used to prevent this event.
2. Stand-down meetings were held with all Mechanical Maintenance personnel to ensure that they understood the details of the event.
3. The mechanical maintenance department was trained on walking down breaker related equipment clearance orders.
4. Additional signs/placards were placed on switchgear cabinets susceptible to spurious relay operation.

Other Information

None