NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
St. Lucie Unit 2	0 5 0 0 0 3 8 9	1 OF 0 3

TITLE (4)

Reactor Shutdown Required due to an Inoperable Control Element Assembly

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	DOCKET NUMBER(S)
										N/A	0 5 0 0 0
1 2	2 6	8 5	8 5	0 1 0		0 0	0 1	2 7	8 6		0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)					
POWER LEVEL (10)	9 9	20.402(b)	20.405(c)	X	50.73(a)(2)(iv)	73.71(b)	
		20.405(a)(1)(i)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)	
		20.405(a)(1)(ii)	50.36(c)(2)		50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		
		20.405(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
		20.405(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
R. L. Kulavich, Shift Technical Advisor	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 NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
X	A A	C L	C 4 9 0	Yes							

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

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

EVENT:

A reactor shutdown was required per Tech. Spec. 3.1.3.1.e when an individual Control Element Assembly (CEA) (JC) was declared inoperable due to failure of its drive mechanism's upper gripper coil (CL).

Reactor plant cooldown to cold shut-down was initiated to effect repairs to the CEA drive mechanism's upper gripper coil. During the reactor plant cooldown and depressurization a personnel error led to inadvertant actuation of the Safety Injection Actuation Signal (SIAS) (JE). The personnel error was failure to provide the SIAS BLOCK when required. All SIAS Engineered Safety Features (BD, BI, BK, BP, and BQ) actuated as designed but no water was injected to the Reactor Coolant System (RCS) (AB) because the RCS pressure remained above the shut-off head for the High Pressure Safety Injection pumps (BQ).

CORRECTIVE ACTIONS AND ROOT CAUSES:

The root cause for the inadvertent SIAS was a cognitive personnel error by a utility licensed operator. The immediate corrective actions for the inadvertant SIAS were to verify that no valid conditions for SIAS existed, then provide the SIAS BLOCK in accordance with the cooldown procedure, and then secure the affected equipment.

The failed upper gripper coil had low resistance across the coil winding. A new upper gripper coil was installed and tested satisfactory prior to returning the unit to power.

This is the first occurrence of this type at Plant St. Lucie.

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

EVENT:

At 0747 on December 26, 1985, the Control Element Assembly (CEA) (JC) connected to CEA drive mechanism (CEDM) number 73 fell from its normal full-out to the fully inserted position within the reactor core (AC). The reactor was at 99% power with all systems operating in their normal mode. No maintenance or surveillances were in progress. The operators followed the procedure for a dropped CEA (OP 2-0110030). Reactor power was stabilized at 96 percent, average coolant temperature was adjusted to match the lower power level, and the shutdown margin was verified to be greater than five percent delta K/K. At 0841 a reactor down-power to 70 percent was commenced per Technical Specification 3.1.3.1.e. Maintenance personnel determined that CEDM 73 was inoperable due to failure of its upper gripper coil (CL) (Coil Model number R5011, manufactured by Combustion Engineering, Inc.). The upper gripper coil failed by electrically shorting across the coil winding insulation. At 1202 a reactor shutdown was commenced in accordance with Technical Specification 3.03. An Unusual Event was declared due to the shutdown required by Technical Specifications. At 1430 the reactor shutdown was completed and the Unusual Event secured. A plant cooldown was commenced to replace the failed upper gripper coil.

At 1813 there was an inadvertent Safety Injection Actuation Signal (SIAS) (JE) actuation due to a cognitive personnel error by a utility licensed operator. The operator failed to engage the SIAS BLOCK during Reactor Coolant System (RCS) (AB) depressurization as required by the plant cooldown procedure (OP 2-0030127). A SIAS actuation occurred when RCS pressure reached the SIAS setpoint. The operators evaluated the SIAS actuation, determined that no valid SIAS conditions existed, and then at 1813 provided the SIAS BLOCK as required by the cooldown procedure. All SIAS Engineered Safety Feactures (BD, BI, BK, and BQ) equipment actuated as designed but no water was injected because the RCS pressure remained above the shut-off head for the High Pressure Safety Injection Pumps (BQ). The operators secured the affected equipment and then continued the plant cooldown to cold shutdown.

CAUSES OF EVENTS:

1. The CEA fell to its fully inserted position due to failure of its upper gripper coil. The upper gripper coil failed due to low resistance across its winding.

2. The inadvertent SIAS was due to a cognitive personnel error by a utility licensed operator. The control room operators failed to actuate the SIAS BLOCK as required by the plant cooldown procedure.

SAFETY ASSESSMENT:

These events were evaluated and determined to be of no consequence because all plant parameters remained within the bounds of the Safety Analysis design basis.

Concerning the Dropped CEA:

All prescribed actions were taken within the time limits specified by the Unit's Technical Specifications. At all times the shutdown margin was greater than the required five percent delta K/K. This dropped CEA event is identical to the event analyzed in section 15.4.1.3.1 of the St. Lucie Unit 2 Final Updated Safety Analysis Report.

Concerning the Inadvertent SIAS:

The SIAS actuation occurred during the plant cooldown while the reactor was in Mode 3. All equipment actuated as designed but no water was injected because the RCS pressure remained above the shut-off head of the High Pressure Safety Injection Pumps (BQ).

The health and safety of the public were not affected by these events.

ROOT CAUSES AND CORRECTIVE ACTIONS:

1. The coil assembly for CEDM 73 was replaced. The new coil assembly was tested satisfactory prior to returning the Unit to power. The root cause for failure of the CEDM upper gripper coil was low resistance across the coil winding. No previous failures of CEDM upper gripper coils have occurred at Plant St. Lucie.

2. The cause of the inadvertent SIAS was a cognitive personnel error by the utility licensed control room operators. The control room operators allowed themselves to be distracted by other aspects of the plant cooldown and failed to provide the SIAS BLOCK at the appropriate RCS pressure. The operators involved received counseling concerning the awareness of existing plant conditions and strict attention to procedure requirements. Additionally, the plant training group will evaluate this item to determine appropriate training requirements and methods.

P.O. BOX 029100 MIAMI, FL 33102

FPL

FLORIDA POWER & LIGHT COMPANY

JAN 2 4 1986

L-86-28

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

Gentlemen:

Re: Reportable Event 85-10
St. Lucie Unit 2
Date of Event: December 26, 1985
Reactor Shutdown Required due to an
Inoperable Control Element Assembly.

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,

C. O. Woody
Group Vice President
Nuclear Energy

COW/SAV:dh

Attachment

cc: Dr. J. Nelson Grace, Region II, USNRC
Harold F. Reis, Esquire
File 933.1
PNS-LI-86-20

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