

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8706300813 DOC. DATE: 87/06/26 NOTARIZED: NO  
 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co.  
 AUTH. NAME AUTHOR AFFILIATION  
 GREEN, W. C. Florida Power & Light Co.  
 WOODY, C. O. Florida Power & Light Co.  
 RECIP. NAME RECIPIENT AFFILIATION

DOCKET #  
05000389

SUBJECT: LER 87-005-00: on 870505, while operating in Mode 1 Unit 2 simultaneously dropped control element assemblies 5 & 6 to bottom of core. Investigation being conducted by plant & vendor support personnel. W/870626 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
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	TOURIGNY, E	1 1		
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DOA	1 1	AEOD/DSP/ROAB	2 2
	AEOD/DSP/TPAB	1 1	DEDRO	1 1
	NRR/DEST/ADE	1 0	NRR/DEST/ADS	1 0
	NRR/DEST/CEB	1 1	NRR/DEST/ELB	1 1
	NRR/DEST/ICSB	1 1	NRR/DEST/MEB	1 1
	NRR/DEST/MTB	1 1	NRR/DEST/PSB	1 1
	NRR/DEST/RSB	1 1	NRR/DEST/SGB	1 1
	NRR/DLPQ/HFB	1 1	NRR/DLPQ/QAB	1 1
	NRR/DOEA/EAB	1 1	NRR/DREP/RAB	1 1
	NRR/DREP/RPB	2 2	NRR/PMAS/ILRB	1 1
	NRR/PMAS/PTSB	1 1	REG FILE 02	1 1
	RES DEPY GI	1 1	RGN2 FILE 01	1 1
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	1 1	NRC PDR	1 1
	NSIC HARRIS, J	1 1	NSIC MAYS, G	1 1

TOTAL NUMBER OF COPIES REQUIRED: LTTR 42 ENCL 40

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
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TITLE (4) TECHNICAL SPECIFICATION REQUIRED REACTOR SHUTDOWN BECAUSE OF TWO DROPPED CONTROL ELEMENT ASSEMBLIES FOR UNIDENTIFIED REASON

EVENT DATE (8)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)																																																																																																														
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LICENSEE CONTACT FOR THIS LER (12)

NAME W. C. Green, Shift Tech. Advisor	TELEPHONE NUMBER AREA CODE: 3 0 5 4 6 5 - 3 5 5 0
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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

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH	DAY	YEAR

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

**ABSTRACT**

At 0420 hours, on May 5, 1987, while operating in Mode 1 at 100 percent power, Unit #2 dropped Control Element Assemblies (CEA) #5 and #7 simultaneously to the bottom of the core. The utility licensed operators immediately shutdown the unit without attempting to recover the CEAs. All components were observed to operate properly and core power distribution was determined to be acceptable at all times throughout the event.

This is the second event of this type. Investigation into the root cause of the event is being conducted by plant and vendor support personnel. The specific failure mode has not yet been identified.

Florida Power and Light has analyzed a dual dropped CEA event for CEAs #5 and #7 which will permit recovery without reactor shutdown if they are dropped again this cycle.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  St. Lucie Unit #2	DOCKET NUMBER (2)  0 5   0 0   0 3   8 9	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 7	0 0 5	0 0	0 2	OF	0 3

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

DESCRIPTION OF EVENT

At 0420 hours, on May 27, 1987, St. Lucie Unit #2 was operating in Mode 1 at 100 percent power when for no apparent reason two Control Element Assemblies (CEA) (EIIS:AA) #5 and #7 dropped simultaneously to the bottom of the core. The utility licensed operators after acknowledging and verifying CEA control room alarms, immediately took steps to promptly shutdown the unit without attempting to recover the CEAs. Technical Specification 3.1.3.1.C requires with more than one full length CEA inoperable or misaligned from any other CEA in its group by more than 15 inches, be in Hot Standby within 6 hours. After safely taking the unit to Mode 3 at 0523 hours (Hot Standby), the operability of both CEAs was verified. An analysis of the core power distribution was performed using the incore instrumentation system, which verified the acceptability to return to full power operation and the unit was taken critical at 1804 hours and was returned to 100 percent power at 0525 hours on May 28, 1987.

CAUSE OF THE EVENT

The root cause of the event seems to be a random intermittent failure of a Control Element Drive Mechanism Control System (CEDMCS) component.

CEAs #5 and #7 were dropped prior to this event on April 28, 1987, but were recovered before a Technical Specification required shutdown was necessary. At that time plant personnel ran a series of checks on the CEAs control system, assuring proper voltages, currents, coil/gripper operation, and system settings. No specific problem could be identified at that time and the plant was returned to operation.

Subsequent to the most recent event vendor personnel were brought in to assist plant personnel in the investigation. Again no specific failure mechanism was found and the plant was returned to power. The random intermittent nature of the failures dictates that the investigation be best accomplished by monitoring the system's operation while it is in an operational configuration. The two CEAs have been placed on a maintenance hold bus while their normal power supply is being continuously monitored to determine its intermittent failure mode. Plant personnel along with vendor support personnel will continue to investigate and monitor CEDMCS components and parameters until the root cause of the failures is found and corrected.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  St. Lucie Unit #2	DOCKET NUMBER (2)  0   5   0   0   0   3   8   9	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8   7	0   0   5	0   0	0   3	OF	0   3

TEXT (If more space is required, use additional NRC Form 368A's) (17)

ANALYSIS OF THE EVENT

The event is reportable under 10 CFR 50.73 (a)(2)(i) as any event or condition that results in the completion of any nuclear plant shutdown required by the plant's Technical Specifications. This event when compared against the analysis in section 15.4.2.3.8.1, "CEA Drop Event", of the St. Lucie Unit #2 Final Updated Safety Analysis Report (FUSAR) is determined to be of little significance. The actual plant response was more conservative than the FUSAR analysis because the FUSAR assumes that the CEA detection system is inoperable, that turbine load remains the same, and that all charging pumps (EIIIS:CB) and pressurizer proportional heaters are inoperable.

A subsequent Florida Power and Light analysis of this event was performed that verified that the dropped CEAs had no significant effect on core parameters and that the recovery actions were technically adequate. In fact, the analysis showed that a simultaneous drop of CEAs #5 and #7 is less severe than the worst case single CEA drop. Thus, the health and safety of the public were not affected by this event.

CORRECTIVE ACTIONS

1. The plant was taken to Mode 3 Hot Standby and the CEAs were withdrawn to assure operability.
2. A specific analysis has been performed for these two dropped rods, which verifies that the recovery actions taken during this event were technically adequate. Also, the analysis verified that if these two rods drop together in the future that recovery of the rods can be performed before completion of shutdown.
3. The CEAs have been placed on the maintenance hold bus as a precautionary measure while their normal power supply output is being monitored. Plant personnel along with vendor personnel are continuing to investigate and monitor CEA components and parameters.

ADDITIONAL INFORMATION

FAILED COMPONENT INFORMATION:

No specific component failures have been identified during this event and the investigation is continuing.

PREVIOUS SIMILAR EVENTS:

See LER 389-85-06 for a previous similar event involving two simultaneously dropped CEAs.



JUNE 26 1987  
L-87-270  
10 CFR 50.73

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

Gentlemen:

Re: St. Lucie Unit 2  
Docket No. 50-389  
Reportable Event: 87-05  
Date of Event: May 27, 1987  
Technical Specification Required Reactor Shutdown Because of  
Two Dropped Control Element Assemblies for Unidentified Reason

The attached Licensee Event Report is being submitted pursuant to the requirements of 10 CFR 50.73.a. to provide notification on the subject event.

Very truly yours,

*C. O. Woody*  
for C. O. Woody  
Group Vice President  
Nuclear Energy

COW/GRM/gp

Attachment

cc: Dr. J. Nelson Grace, Regional Administrator, Region II, USNRC  
Senior Resident Inspector, USNRC, St. Lucie Plant

*TE22*  
*11*

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