

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9607160066 DOC.DATE: 96/07/08 NOTARIZED: NO DOCKET #
 FACIL:50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335
 AUTH.NAME AUTHOR AFFILIATION
 NOBLE,R. Florida Power & Light Co.
 STALL,J.A. Florida Power & Light Co.
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 96-008-00:on 960608,inadvertent actuation of safety injection actuation signal & containment isolation actuation signal occurred.Caused by loss of power supply.Reviewed power supply design & conducted visual insp.W/960708 ltr.

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FPL

Florida Power & Light Company, P.O. Box 128, Fort Pierce, FL 34954-0128

JUL 08 1996

L-96-174
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: 96-008
Date of Event: June 8, 1996
Inadvertent Actuation of the Safety Injection Actuation
Signal and Containment Isolation Actuation Signal Due to
Loss of the 15 VDC Regulated Power Supply During Maintenance.

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

Very truly yours,

J. A. Stall
Vice President
St. Lucie Plant

JAS/REN

Attachment

cc: Stewart D. Ebnetter, Regional Administrator, USNRC, Region II
Senior Resident Inspector, USNRC, St. Lucie Plant

100009

9607160066 960708
PDR ADOCK 05000335
S PDR

an FPL Group company

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: 60.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (IT-4 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20558-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

ST LUCIE UNIT 1

DOCKET NUMBER (2)

05000335

PAGE (3)

1 OF 5

TITLE (4)

Inadvertant Actuation of the Safety Injection Actuation Signal and Containment Isolation Actuation Signal Due to Loss of the 15 VDC Regulated Power Supply During Maintenance.

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
6	8	96	96	008	0	7	8	96	NA	NA
OPERATING MODE (9)		6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		0	20.2201(b)			20.2203(a)(2)(v)			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)(iii)			50.36(c)(1)			50.73(a)(2)(v)	OTHER
			20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)	Specify in Abstract below or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME

Rick Noble, Licensing

TELEPHONE NUMBER (include Area Code)

(561) 467-7160

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NFRDS

SUPPLEMENTAL REPORT EXPECTED (14)

<input checked="" type="checkbox"/> YES (if yes, complete EXPECTED SUBMISSION DATE).	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
			8	2	96

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

On June 8, 1996 at 1355, with Unit 1 in Mode 6, an inadvertent actuation of channel B safety injection actuation signal (SIAS) and containment isolation actuation signal (CIAS) occurred during performance of maintenance in the engineered safety features actuation system (ESFAS) SB cabinet. The B electrical train was out of service for maintenance and testing. The 1B emergency diesel generator was out of service pending completion of post modification testing. All technical specification required electrical loads were being supplied by the A electrical train.

The preliminary cause has been determined to be a loss of the 15 volt dc regulated power supply to the SIAS and CIAS circuits during maintenance. Instrumentation & control technicians were replacing a regulating power supply monitoring card when the fuse blew. In addition, apparent power supply wiring discrepancies were discovered during system troubleshooting performed following the event. Additional details related to the cause of the event are still under investigation and will be supplied in a supplement to this LER.

Corrective Actions: 1. The power supply design was reviewed and a visual inspection of ESFAS cabinets was conducted. No additional anomalies were detected. 2. Additional testing is being conducted, prior to the unit returning to power from refueling, to verify root cause and determine additional corrective actions.



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

DESCRIPTION OF THE EVENT

On June 8, 1996 at 1355, with Unit 1 in Mode 6, an inadvertent actuation of channel B safety injection actuation signal (SIAS) (EIS:BQ) and containment isolation actuation signal (CIAS) (EIS:JM) occurred. The B electrical train was out of service for maintenance and testing. The A electrical train was in service performing its design function. The 1B emergency diesel generator (EIS:EK) was out of service pending completion of post maintenance testing. The 1B3 4160 volt electrical bus was energized from the 1B startup transformer. The 1B2 480 volt load center was being powered from the 1A2 480 volt load center and preparations were under way to restore it to its normal line up.

Instrument and control technicians were installing two replacement regulated power supply monitor cards (A10 / A11) in the engineered safety features actuation system (ESFAS) (EIS:JE) SB cabinet when the actuation occurred. These cards monitor the condition of the two 15 volt DC power supplies (S3/M3 and S4/M4) to the SIAS, CIAS, recirculation actuation signal (RAS) (EIS:BP), containment spray actuation signal (CSAS) (EIS:BE), and steam generator isolation actuation units. During the installation of regulated power supply monitor card A10, an inadvertent channel B SIAS and CIAS occurred.

It was discovered that fuse F3 in the M3 15 volt dc power circuit had opened and the voltage on power supply S3 was indicating approximately zero volts. In addition to the open fuse, it was suspected that the S3 power supply was crow barred (a protection feature which shunts the output on high voltage, 19 volts dc). The F3 fuse was replaced and the A10 regulated supply monitor card installation was completed.

Operations verified that appropriate component actuations for CIAS and SIAS occurred for this configuration. The components were then reset to their initial configuration prior to the event. Channel B SIAS reset when the fuse in the S3/M3 power supply was replaced. In accordance with 10CFR50.72, the Nuclear Regulatory Commission was notified at 1600 on June 8, 1996.

Review of vendor manual drawings, during troubleshooting, indicated that the 15 volt dc power supply (S3/M3) was associated with CSAS and RAS functions and not with the SIAS or CIAS function. Troubleshooting activities were stopped at this point and an event response team (ERT) was formed.

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CAUSE OF THE EVENT

The preliminary cause of the S3/M3 power supply failure has been determined to be related to re-installation of the original A10 card. Additional investigation and testing is being conducted to identify the root causes of the power supply failure.

The ERT determined that the spurious channel B SIAS and CIAS actuation was a direct result of the maintenance activity (i.e., a result of the S3/M3 power supply failure) and not due to a coincident external event. The vendor manual drawings indicate that the S3/M3 power supply is associated with CSAS and RAS, therefore, loss of the S3/M3 power supply would not be expected to result in a SIAS or CIAS. Because a loss of the S3/M3 power supply did result in SIAS/CIAS, it is apparent that the field wiring configuration of this power supply differs from the vendor technical manual drawings (Figure 1 illustrates the documented power supply configuration). This difference would not affect the safety function of the CIAS circuits required in Mode 6, but does represent a configuration control issue and therefore involves an impact on maintenance activities. A visual inspection of the ESFAS cabinet wiring was made. A work order has been initiated to perform the testing and trouble shooting necessary to resolve the apparent wiring discrepancies. The results of this testing will be included in a supplement to this LER. The supplemental LER will also address the cause of the configuration discrepancies.



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ANALYSIS OF THE EVENT

This event is reportable under 10 CFR 50.72 (b) (2) (ii) and 10 CFR 50.73 (a) (2) (iv) as "Any event or condition that resulted in a manual or automatic actuation of any engineered safety feature..."

The S3/M3 power supply apparently failed during reinstallation of the A10 card. The reason why failure of the S3/M3 power supply resulted in a spurious SIAS/CIAS is still under investigation. The subsequent actuation of the B channel SIAS and CIAS components occurred as designed. The power supply wiring discrepancies found would not compromise the function of any engineered safety feature actuation under design bases assumptions and therefore, were not apparent during previous ESFAS testing. The B train ESF equipment was out of service and the Technical Specification required equipment was supplied from the A electrical train. There was no interruption to any equipment on the A electrical train. The unit was shutdown at the time of the event and the root cause and corrective actions will be completed prior to entering mode 4. Therefore the health and safety of the public were not adversely affected.

CORRECTIVE ACTIONS

- A. A preliminary design review and visual inspection of the ESFAS cabinet was conducted. No additional anomalies (e.g., incorrect connections, damaged wires) were detected.
- B. Additional testing is being conducted to determine why the power supply failed and why failure of the S3/M3 power supply resulted in SIAS/CIAS actuation. This testing will also resolve the apparent configuration discrepancies. The results of this testing will be used to determine the additional corrective actions required. This testing and corrective action will be completed prior to the unit entering mode 4.

ADDITIONAL INFORMATION

Component Failure

none

Previous Similar Event

LER 94-010 revision 0

"Inadvertent B train Engineered Safeguards Features Actuation Signal (ESFAS) due to a Deficient Instrument and Control Test Procedure."

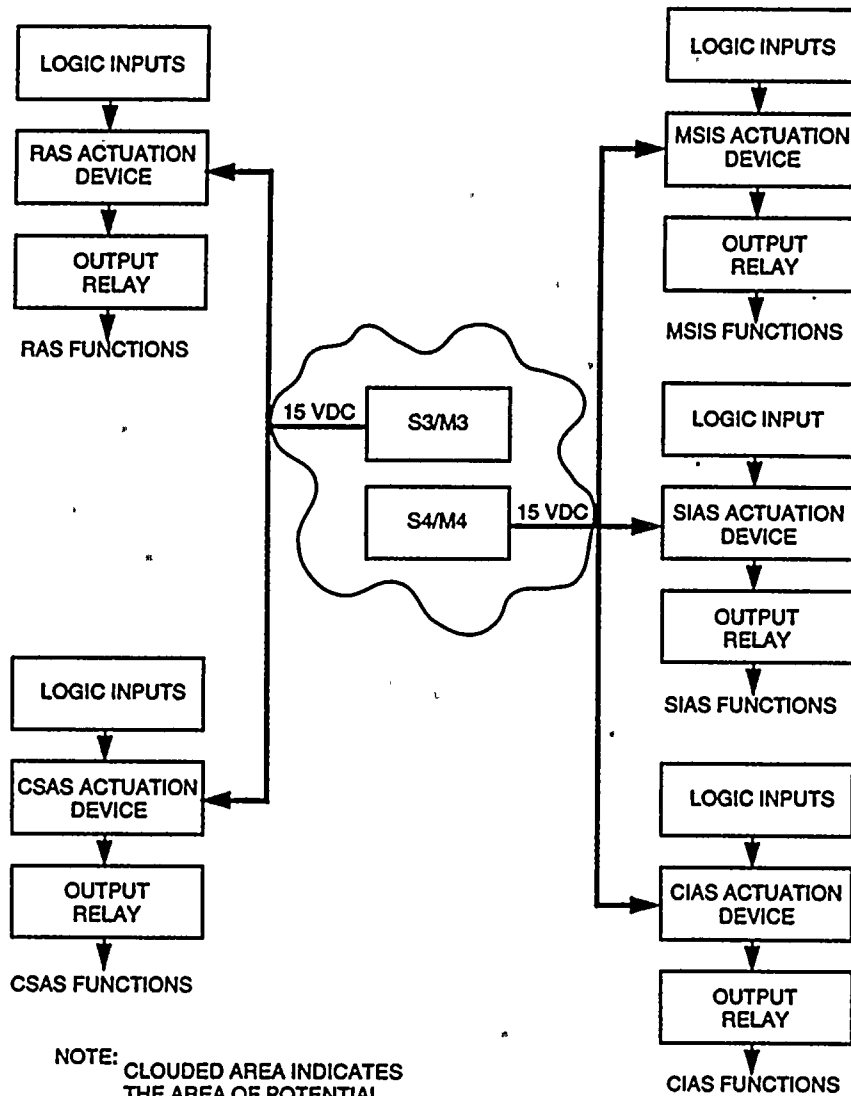
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FIGURE 1

SIMPLIFIED 15 VDC POWER SUPPLY INPUTS TO ESFAS ACTUATION LOGIC



NOTE: CLOUDED AREA INDICATES THE AREA OF POTENTIAL WIRING CONFIGURATION DISCREPANCIES

