

REGULATOR INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9701090052 DOC. DATE: 97/01/07 NOTARIZED: NO
 FACIL: 50-389 St. Lucie Plant, Unit 2, Florida Power & Light Co.
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 RECIP. NAME RECIPIENT AFFILIATION

DOCKET #
05000389

SUBJECT: LER 96-006-00: on 961211, operation prohibited by TS identified due to inadequate surveillance of auxiliary feedwater components. Caused by inadequate procedures. Procedures revised & addl testing performed. W/970107 ltr.

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

January 7, 1997

L-97-05
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: 96-006
Date of Event: December 11, 1996
Operation Prohibited by Technical Specifications due to
Inadequate Surveillance of Auxiliary Feedwater Components

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,

A handwritten signature in dark ink, appearing to read "JAS", written over a horizontal line.

J. A. Stall
Vice President
St. Lucie Plant

JAS/EJB

Attachment

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

TL 00/1

9701090052 970107
PDR ADCK 05000389
S PDR

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 (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20566-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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ST LUCIE UNIT 2

DOCKET NUMBER (2)

05000389

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TITLE (4)

Operation Prohibited by Technical Specifications due to Inadequate Surveillance of Auxiliary Feedwater Components

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
12	11	96	96	-- 006	-- 00	01	07	97	N/A	
									N/A	

OPERATING MODE (9)	POWER LEVEL (10)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)				
1	100	20.2201(b)	20.2203(a)(2)(v)	X	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)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: Edwin J. Benken, Licensing Engineer
TELEPHONE NUMBER (Include Area Code): (561) 467 - 7156

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): X NO
EXPECTED SUBMISSION DATE (15): MONTH DAY YEAR

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

On December 11, 1996, St. Lucie Unit 2 was operating in Mode 1 at 100 percent reactor power. While performing a review as requested by NRC Generic Letter 96-01, "Testing of Safety Related Logic Circuits," FPL determined that the independent operability of the St. Lucie Unit 2 auxiliary feedwater manual initiation switches had not been adequately tested by an existing surveillance procedure. The appropriate Technical Specification Action requirements were implemented for failure to perform a surveillance requirement. Additional testing was initiated and satisfactorily completed per Technical Specification requirements on December 12, 1996.

The cause of the event was an inadequate surveillance procedure for testing of the Auxiliary Feedwater manual initiation switches.

Corrective actions include: 1) Additional testing of the auxiliary feedwater manual initiation switches was satisfactorily performed to verify individual channel operability. 2) Revised surveillance test instructions were developed and are being incorporated into the existing surveillance procedure. 3) Safety related electrical circuitry is continuing to be reviewed with regard to testing adequacy in accordance with the actions requested by NRC Generic Letter 96-01.

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

DESCRIPTION OF THE EVENT

On December 11, 1996, St. Lucie Unit 2 was operating in Mode 1 at 100 percent reactor power. While performing a review of the auxiliary feedwater system (EIS:BA) for surveillance test adequacy in accordance with NRC Generic Letter 96-01, "Testing of Safety Related Logic Circuits," FPL engineering personnel identified a surveillance testing deficiency. The deficiency concerned the testing of auxiliary feedwater actuation signal (AFAS) manual initiation switches, which are required to be functionally tested by plant Technical Specifications (TS). Specifically, TS Table 4.3.2, Item 7.a, requires that the Manual (Trip Buttons) for the AFAS be tested at least once per 18 months. Operating Procedure OP 2-0400050, "Periodic Test of the Engineered Safety Features," provides the instructions for performance of this surveillance. The procedural instructions, however, require that all four manual initiation switches for each AFAS channel be placed in the manual (trip) position at the same time. Performance of the surveillance in accordance with the procedure, therefore, does not verify the electrical contact operation associated with the individual operation of each manual initiation switch.

Operations personnel were informed of the surveillance inadequacy, and at 1845 on December 11, 1996, TS Surveillance Requirement 4.0.3 was implemented for a failure to adequately test the AFAS manual initiation switches. TS Surveillance Requirement 4.0.3 specifies that failure to perform a surveillance requirement within the allowed surveillance interval shall constitute noncompliance with the operability requirements for a Limiting Condition for Operation (LCO). TS 4.0.3 also allows action requirements to be delayed for up to 24 hours to permit the completion of a surveillance when the allowable outage time limits of the LCO action requirement are less than 24 hours.

Following discovery of the above condition, additional functional testing was initiated at 1058 on December 12, 1996, to verify the proper operation of each AFAS manual initiation switch. This testing was completed satisfactorily at 1117 on December 12, 1996.

CAUSE OF THE EVENT

The cause of the event was an inadequate surveillance test procedure. Surveillance Operating Procedure 2-0400050, "Periodic Test of the Engineered Safety Features," contains the instructions for the performance of the operability test of the AFAS manual initiation channels. The surveillance test instructions of the procedure direct that all four channels of manual initiation switches for AFAS be placed in manual (trip) concurrently to initiate auxiliary feedwater actuation. Because the manual initiation logic circuitry is designed to be a selective 2-out-of-4 actuation, positioning all four manual initiation switch channels to the trip position at the same time does not adequately verify the individual operability of each manual initiation switch.

ANALYSIS OF THE EVENT

Technical Specifications

This event is reportable under 10 CFR 50.73 (a)(2)(i)(B), as "any operation or condition prohibited by the plant's Technical Specifications. St. Lucie Unit 2, TS 3.3.2, requires that the Engineered Safety Features Actuation System (ESFAS) instrumentation channels and bypasses shown in Table 3.3-3 be

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ANALYSIS OF THE EVENT Continued

operable with their trip setpoints set consistent with the values shown in the Technical Specifications. TS Surveillance Requirement 4.3.2.1 requires each ESFAS channel to be demonstrated operable by the performance of the Channel Check, Channel Calibration and Channel Functional Test operations for the Modes and at the frequencies shown in Table 4.3-2. This Table requires that a Channel Functional Test of the AFAS manual trip channels be performed at least once per 18 months.

Following a determination that the functional testing of the AFAS manual initiation circuitry was inadequate to fully demonstrate individual channel operability, Operations personnel implemented the surveillance requirements of TS 4.0.3. Additional testing of the manual initiation circuitry for the auxiliary feedwater system was then satisfactorily performed within the allowable time constraints of TS 4.0.3.

Assessment of Safety Significance

The automatic initiation signals and circuitry associated with the auxiliary feedwater system are designed so that a single failure will not result in the loss of the auxiliary feedwater function. The safety related functions associated with the Auxiliary Feedwater System at St. Lucie Unit 2 include the following:

- 1) The system shall provide feedwater for the removal of sensible and decay heat from the Reactor Coolant System (RCS) (EIS: AB) assuming a single active failure concurrent with a loss of offsite power or station blackout. Additionally, feedwater is provided for heat removal during accident conditions assuming a single active failure with a loss of offsite power or station blackout.
- 2) The system shall be capable of isolating the AFW steam and feedwater supply lines from an affected steam generator (rupture identification) following a main steamline or feedline break.
- 3) The system shall be capable of automatically initiating auxiliary feedwater flow upon receipt of an auxiliary feedwater actuation signal (AFAS) within the time frame specified by the most limiting design basis accident analyzed.

The manual switch testing which was performed using the Periodic Test of Engineering Safety Features Procedure demonstrated that an AFAS could be manually initiated from the main control board although full redundancy of the manual initiation circuitry was not verified. The surveillance test procedures for all other portions of the AFAS actuation logic were reviewed and found to be consistent with Technical Specification requirements.

The auxiliary feedwater system is designed to eliminate credible multiple channel failures originating from a common cause, and to provide reasonable assurance that the protective system cannot be rendered inoperable by inadvertent actions of operating or maintenance personnel.

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ANALYSIS OF THE EVENT Continued

There are four AFAS manual initiation switches (channels) for each steam generator located on the main control board. The manual initiation switches are designed such that an individual contact from each switch is used in the AFAS actuation logic at the initiation relay stage. Placing a switch in the manual position will deenergize the four initiation relays in the channel associated with that switch (refer to Figure 1). The potential failure of an AFAS manual initiation switch to operate properly does not prevent the ability to manually initiate auxiliary feedwater, in that the inoperability of any one channel will result in a selective two out of three logic remaining for manual actuation. In addition, separate manual actuation switches are located on the front face of the AFAS cabinets in the control room. Contacts from these switches directly interrupt power to relays to actuate auxiliary feedwater and these switches are available as a backup to the manual initiation switches located on the control board (refer to Figure 2). At St. Lucie Unit 1, the Auxiliary Feedwater System uses manual actuation switches located on the AFAS cabinets and manual initiation is not available from the control board. The testing methodology differs for the Unit 1 system and therefore this condition is not applicable for Unit 1.

The failure of surveillance testing to fully verify the redundancy of the AFAS manual initiation circuitry did not adversely impact safety related functions of the auxiliary feedwater system as described above. Automatic initiation or rupture identification functions of the system were not affected and sufficient diversity existed to assure system availability by manual action if required. The AFAS manual initiation switches were individually tested following this event and verified to be operable. Based on the above, the protection of the health and safety of the public was not affected by the event.

CORRECTIVE ACTIONS

1. Individual testing of the of the St. Lucie Unit 2 AFAS manual initiation switches was successfully completed on December 12, 1996.
2. Procedural test instructions were developed to individually verify AFAS manual initiation switch contact operation. Test instructions are being incorporated into the surveillance procedure for the auxiliary feedwater system to facilitate future testing.
3. In accordance with NRC Generic Letter 96-01, FPL is continuing to review applicable safety related logic circuitry and testing procedures to ensure that all circuit components required to be tested are adequately addressed by surveillance procedures.

ADDITIONAL INFORMATION

Component Failures - None

Previous Similar Events

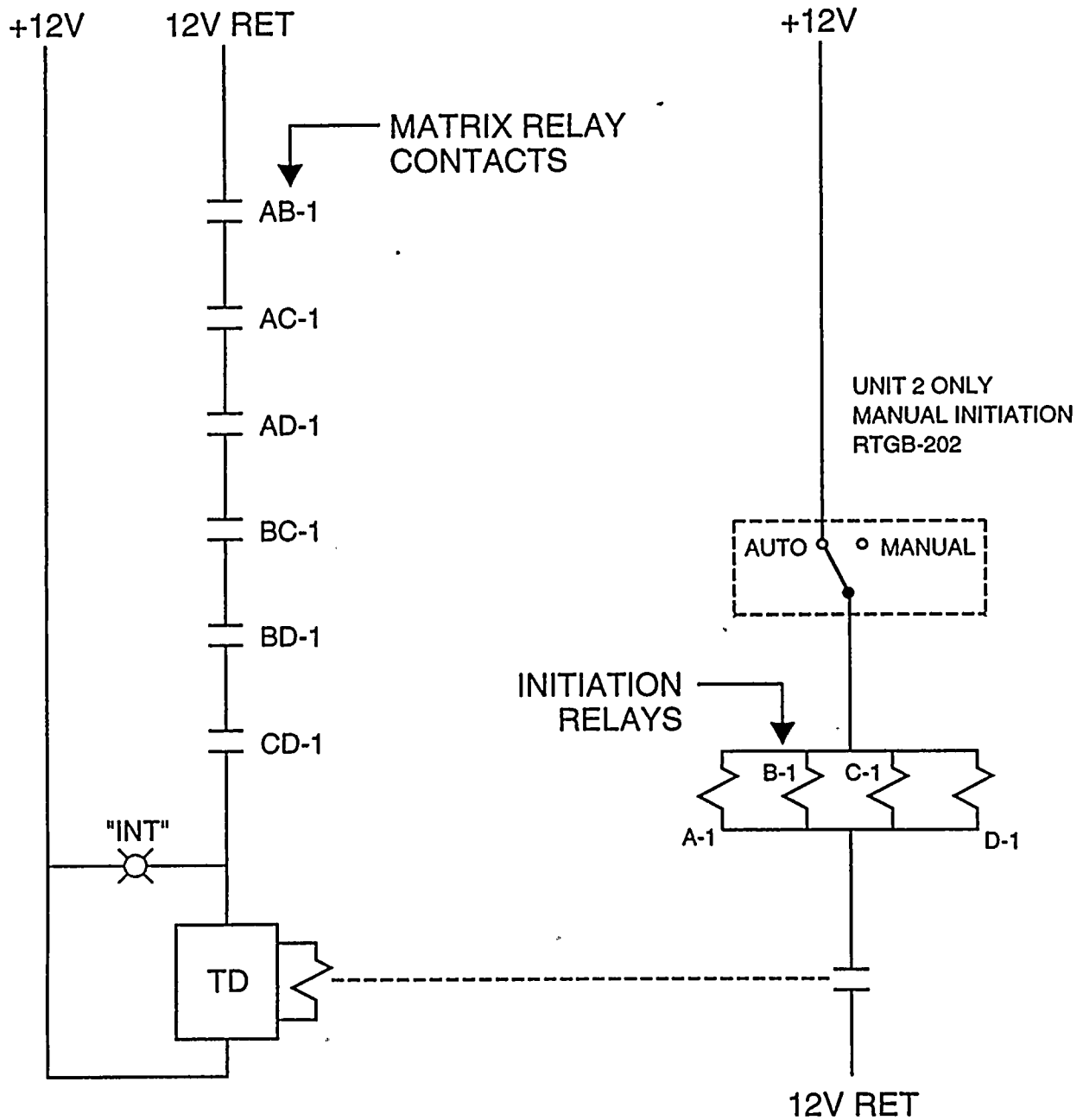
LER 389/96-005 - "Operations prohibited by TS due to inadequate testing of Reactor Trip Breakers" This event describes an additional surveillance inadequacy identified during review performed per Generic Letter 96-01.

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FIGURE 1
AFAS INITIATION CIRCUIT
(TYPICAL)



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FIGURE 2
AFAS ACTUATION CIRCUIT
(TYPICAL)

