

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9003260543    DOC. DATE: 90/03/09    NOTARIZED: NO    DOCKET # 05000335  
 FACIL: 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co.  
 AUTH. NAME: NEELY, L.W.    AUTHORITY AFFILIATION: Florida Power & Light Co.  
 SAGER, D.A.    Florida Power & Light Co.  
 RECIP. NAME:    RECIPIENT AFFILIATION:

SUBJECT: LER 90-003-00: on 900219, spurious containment isolation signal actuation resulting from radiation monitor NS.

DISTRIBUTION CODE: IE22T    COPIES RECEIVED: LTR ( ) ENCL ( ) SIZE: ( )  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.    W/9    ltr.

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INTERNAL:	ACNW		2	2	ACRS		2	2
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	AEOD/ROAB/DSP		2	2	DEDRO		1	1
	NRR/DET/ECMB 9H		1	1	NRR/DET/EMEB9H3		1	1
	NRR/DET/ESGB 8D		1	1	NRR/DLPQ/LHFB11		1	1
	NRR/DLPQ/LPEB10		1	1	NRR/DOEA/OEAB11		1	1
	NRR/DREP/PRPB11		2	2	NRR/DST/SELB 8D		1	1
	NRR/DST/SICB 7E		1	1	NRR/DST/SPLB8D1		1	1
	NRR/DST/SRXB 8E		1	1	REG FILE 02		1	1
	RES/DSIR/EIB		1	1	RGN2 FILE 01		1	1
EXTERNAL:	EG&G WILLIAMS, S		4	4	L ST LOBBY WARD		1	1
	LPDR		1	1	NRC PDR		1	1
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L-90-98  
10 CFR 50.73


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

Gentlemen:

Re: St. Lucie Unit 1  
Docket No. 50-335  
Reportable Event: 90-03  
Date of Event: February 11, 1990  
Spurious Containment Isolation Signal Actuation Resulting from  
Radiation Monitor Noise Spike Due to External Grid Disturbance

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,

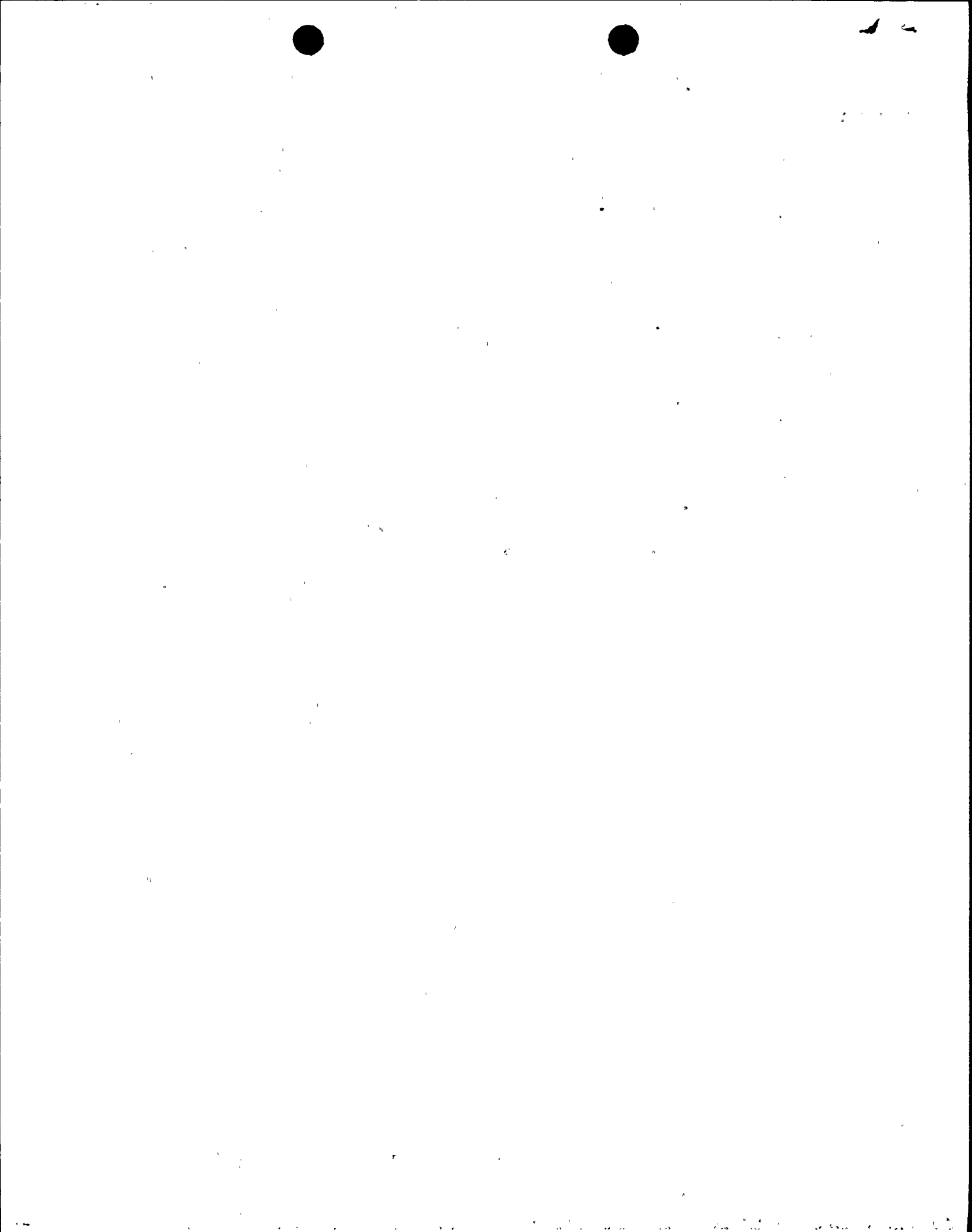
  
D. A. Sager  
Vice President  
St. Lucie Plant

DAS/GRM/sh

Attachment

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

9003260543 900309  
PDR ADOCK 05000335  
S PNC



# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) St. Lucie Unit 1	DOCKET NUMBER (2) 0   5   0   0   0   3   3   5   1	PAGE (3) 1   OF   0   3
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TITLE (4) Spurious Containment Isolation Signal Actuation Resulting From Radiation Monitor Noise Spike Due To External Grid Disturbance

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)
0	2	11	9	0	0	0	3	0	N/A		0   5   0   0   0   3   3   5   1

OPERATING MODE (9) 6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR : (Check one or more of the following) (11)					
POWER LEVEL (10) 0   0   0	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	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)	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 L. W. Neely, Shift Technical Advisor	TELEPHONE NUMBER
	AREA CODE 4   0   7
	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

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO					

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

On February 11, 1990, Unit 1 was shutdown with refueling in progress. One channel of the Engineered Safeguards Features Actuation Signal (ESFAS), channel MB, was out of service due to outage related maintenance for the Anticipated Transient Without Scram modification. This placed the ESFAS actuation in one out of three logic. Containment radiation measurement channel, channel MC, received a spurious alarm. Containment Isolation Signal (CIS) was actuated. At the time of the occurrence, an external voltage perturbation occurred on the 240 kilo-volt transmission lines.

The root cause of the inadvertent CIS is a voltage perturbation on the 240 kilo-volt transmission grid, resulting in a voltage spike on the "C" channel containment radiation monitor.

Corrective actions: Instrumentation and Control (I&C) personnel verified the proper operation of the CIS actuation modules.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  St. Lucie Unit 1	DOCKET NUMBER (2)  05000335	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		90	003	00	02	03	

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

**DESCRIPTION OF THE EVENT**

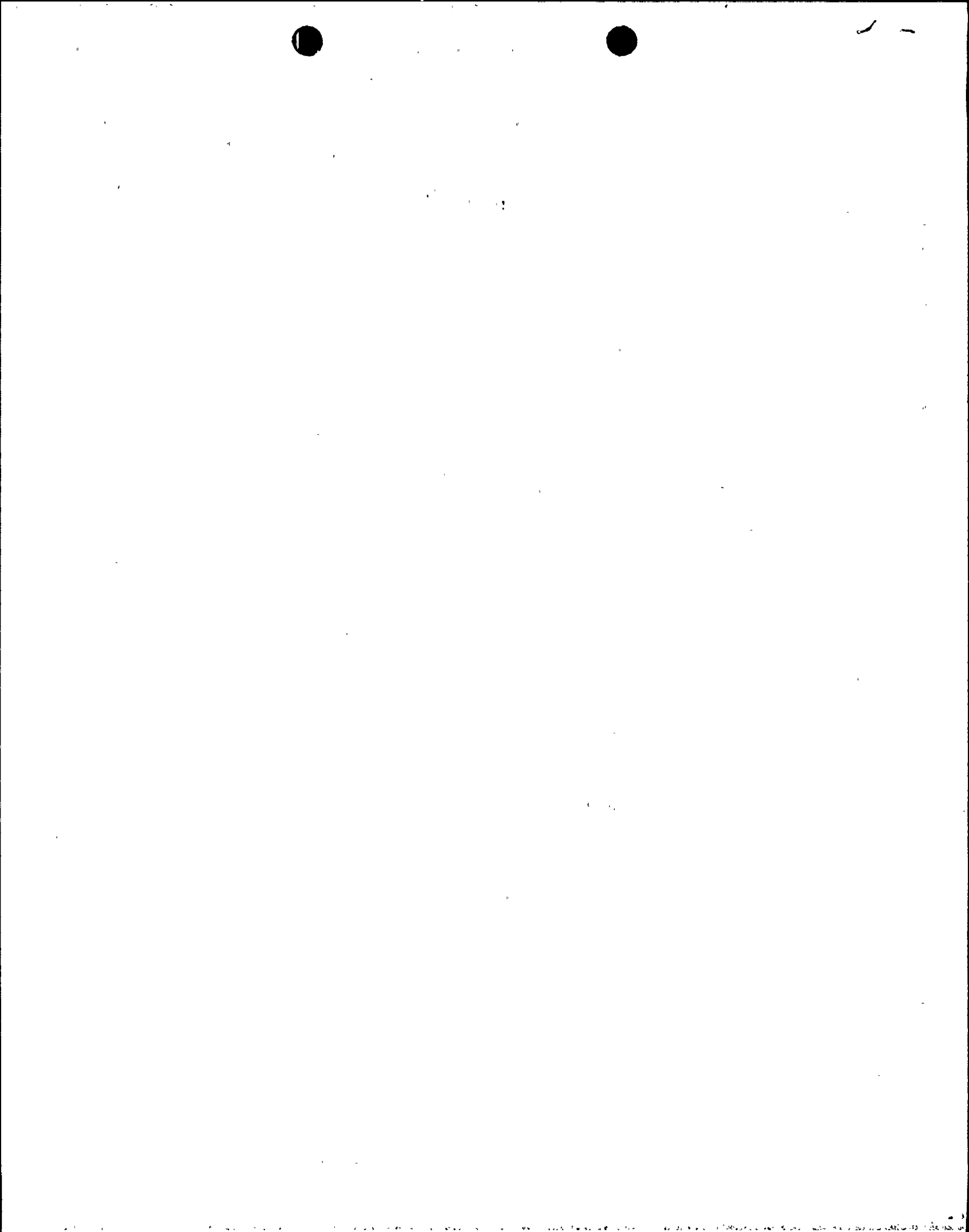
On February 11, 1990, Unit 1 was shutdown with refueling in progress. One channel of the Engineered Safeguards Features Actuation Signal (ESFAS) (EIS:JE), channel MB, was out of service for outage related maintenance due to the Nuclear Regulatory Commission required Anticipated Transient Without Scram modification. This placed the ESFAS actuation in one out of three logic. At 1337 hours, a containment evacuation alarm sounded and the "B" train of the Containment Isolation Signal (CIS) (EIS:JM) actuated. Fuel movement was suspended during the event. The "A" train of the CIS and the Unit 2 Control Room Recirculation Signal did not actuate. Containment High Radiation Monitor "C" was locked in with a trip signal. This was verified to be invalid from the other two channels of containment radiation instrumentation. All "B" train CIS components were reset. At the time of the event, there was an external voltage perturbation on the 240 kilo-volt transmission grid.

Instrumentation and Control (I&C) personnel tested the proper operation of the "A" and "B" CIS trains satisfactorily. Testing of the Unit 2 Control Room Recirculation Signal from a Unit 1 CIS was performed satisfactorily. These tests were completed by approximately 1630 hours.

**CAUSE OF THE EVENT**

The root cause of the event is due to an external voltage perturbation on the 240 kilo-volt transmission grid. This caused a spike on the "C" CIS radiation monitor, which completed the one out of three logic for an actuation of CIS. The short duration of the voltage perturbation was sufficient to cause only a partial actuation of CIS.

Additional testing by I&C personnel demonstrated that a short perturbation to the "C" CIS radiation monitor could only give a "B" side CIS actuation, while still remaining within specifications for the time response of the "A" side without actuation. This testing also demonstrated that for a short duration spike on the "C" CIS radiation monitoring channel, it would not necessarily give a Unit 2 Control Room Recirculation Signal. I&C personnel tested the isolation modules, which perform electrical isolation from measurement to actuation cabinets, and the "A" and the "B" channel isolation modules performed within manufacturer's specifications. Testing at higher frequencies resulted in the "B" isolation module performing its intended function at higher frequencies. The higher frequency noise spectrum would be likely for a noise induced CIS input signal caused by an external grid perturbation. Even though the "A" and "B" isolation modules met the manufacturer's specifications for frequency response, the "B" isolation module was found to trip at a higher frequency than the "A" isolation module. This explains the actuation of only the "B" CIS train.



LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
St. Lucie Unit 1	05000335	90	003	00	03	OF 03

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

**ANALYSIS OF THE EVENT**

The method of discovery of the spurious CIS actuation was due to a containment evacuation alarm and control room annunciation. Control Room licensed operators verified CIS actuation with the use of an approved procedure. Utility maintenance I&C personnel verified that there were no equipment failures for this event. Even though only the "B" channel of CIS actuated, because of the nature of the short duration of the external voltage perturbation, all equipment operated properly within the design tolerances for that equipment.

Thus, the health and safety of the public were not at risk during this event.

This event was reportable to the NRC under 10CFR50.73(a)(2)(iv) as any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature.

**CORRECTIVE ACTIONS**

- 1) I&C personnel verified the proper operation of the "C" channel containment radiation monitor for trip signal to the "A" and "B" CIS actuation trains.
- 2) I&C personnel verified the proper operation of the Unit 2 Control Room Recirculation Signal from a Unit 1 CIS.
- 3) I&C personnel extensively tested the time response of the "A" and "B" train actuation circuitry for time responses. This demonstrated that a short duration noise induced signal could cause only the "B" train to actuate, while not actuating the "A" train.
- 4) Operations licensed personnel properly recovered Unit 1 CIS components from the spurious CIS actuation.

**ADDITIONAL INFORMATION**

**COMPONENT FAILURES**

NONE

**PREVIOUS SIMILAR EVENTS**

The most recent similar event is LER 335-88-001, which describes an inadvertent start of a High Pressure Safety Injection Pump due to an electrical transient caused by a faulty circuit breaker.

