

PRIORITY 1

(ACCELERATED RIDS PROCESSING)

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9412290167 DOC. DATE: 94/12/19 NOTARIZED: NO DOCKET #
 FACIL: 50-335 St. Lucie Plant, Unit 1, Florida Power & Light Co. 05000335
 AUTH. NAME AUTHOR AFFILIATION
 WILLIAMS, J.R. Florida Power & Light Co.
 SAGER, D.A. Florida Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 94-009-00: on 941122, alarms indicated SIAS & CIS had actuated. Caused by pressure transmitters on C & D channels of pressurizer pressure drifting high, removing SIAS block signal. Operators verified component actuation. W/941219 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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December 19, 1994

L-94-324
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: 94-009
Date of Event: November 22, 1994
Inadvertent Safety Injection Actuation Signal/Containment
Isolation Signal due to an Invalid High Pressurizer Pressure
Signal

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,

C. L. Burton for
D. A. Sager
Vice President
St. Lucie Plant

DAS/JWH

Attachment

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

9412290167 941219
PDR ADOCK 05000335
S PDR

IE22
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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (HMBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, 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
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TITLE (4) **Inadvertent Safety Injection Actuation Signal/ Containment Isolation Signal due to an Invalid High Pressurizer Pressure Signal.**

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
11	22	94	94	--009--	0	12	19	94	N/A	
									N/A	

OPERATING MODE (9) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)			
POWER LEVEL (10) 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	OTHER
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME James R. Williams, Shift Technical Advisor	TELEPHONE NUMBER (Include Area Code) (407) 465-3550 x3151
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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
X	JC	PT	R369	Y					

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input type="checkbox"/> NO		3	22	1995

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

On November 22, 1994, Unit 1 was in mode 5 with utility licensed operators in the process of filling and venting the Reactor Coolant System. At 2137, with Pressurizer pressure at approximately 65 psia the control room operators received alarms indicating a Safety Injection Actuation Signal (SIAS) and a Containment Isolation Signal (CIS) had actuated. The operators noted that C and D channels of Pressurizer pressure were indicating 2300 psia and 1840 psia respectively. All components actuated as required. At 2229, the 1B Emergency Diesel Generator (EDG) loaded onto the 1B3 safety related bus due to a loss of voltage on the 1B3 bus that developed from the SIAS actuation while the plant was in an electrical line-up only used during outages. All B train components sequenced onto the EDG as required. Offsite power remained available throughout the event.

The cause of the event was due to the pressure transmitters on C and D channels of Pressurizer pressure drifting high and allowing the SIAS block signal to become removed. The cause of pressure transmitters drifting high is still being investigated.

Corrective actions: 1) Operators verified all components had actuated to their required position. 2) Operators restored offsite power to the B electrical train. 3) Instrument and Control (I&C) personnel reset the SIAS block permissive signal. 4) Operators reset all affected components to their normal state. 5) I&C replaced the C and D pressure transmitters. 6) Root cause of failure is being investigated.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
St. Lucie Unit 1	05000335	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 5
		94	--009--	0	

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

DESCRIPTION OF THE EVENT

On November 22, 1994, Unit 1 was in mode 5 with utility licensed operators in the process of raising Pressurizer (EIIS:AB) pressure during filling and venting the Reactor Coolant System (RCS). The Engineered Safety Features Actuation System (EIIS:JE) consists of four measurement channels MA, MB, MC, MD and requires two of four measurement channels to be in trip for an actuation to occur. At this time, all four measurement channels of Pressurizer pressure were providing a block signal which prevents a Safety Injection Actuation Signal (SIAS) from occurring for low Pressurizer Pressure. This is a normal configuration when Pressurizer pressure is intentionally reduced below 1600 psia which is the low Pressurizer pressure SIAS trip setpoint. At 1725 psia increasing, the low Pressurizer pressure SIAS block is automatically removed and will allow a SIAS to occur if two of four channels are below the low Pressurizer pressure trip setpoint of 1600 psia. A SIAS actuation also causes a Containment Isolation Signal (CIS) to occur.

At 2137, with Pressurizer pressure at approximately 65 psia, utility licensed operators in the control room received alarms indicating a SIAS had occurred. At 2138, the control room licensed operators noted that C channel of Pressurizer pressure was indicating 2300 psia and D channel was indicating 1840 psia and continuing to drift higher. With both C and D channels of Pressurizer pressure above the 1725 psia block permissive setpoint the SIAS block signal was automatically removed. With channels A and B indicating less than the 1600 psia low Pressurizer pressure trip setpoint the two of four logic was satisfied and a SIAS/CIS was initiated. All SIAS components responded as expected including the start of both Emergency Diesel Generators (EDG) (EIIS:EK). However, offsite power was available at the time of the event and neither EDG was required to load on to the Class 1E safety buses (EIIS:EB).

At 2229, the 1B EDG output breaker closed and provided power to the 1B3 4160 volt safety related bus concurrent with the opening of the 1B2 4160 volt non-safety related bus tie breaker to the 1B3 4160 volt bus. This tie breaker opened in response to an undervoltage condition on the 1B2 480 volt (EIIS:ED) safety related bus. At the time of the undervoltage condition the 1B2 480 volt safety related bus was being supplied power from the 1A2 480 volt safety related bus via the 1AB 480 volt safety related bus. This line-up is only used during outages in modes 5 and 6. Prior to the event only outage loads were being supplied by the 1B2 480 volt safety related bus. However, when the SIAS actuated additional loading was placed on the 1B2 480 volt bus. Over a period of time this caused an overcurrent condition to be detected by one of the tie breakers which caused the tie breaker to open. When this occurred a loss of voltage sensed on the 1B2 480 volt bus provided a signal to open the 1B2 4160 volt non-safety related bus tie breaker to the 1B3 4160 volt safety related bus. This caused a loss of voltage signal to be sensed

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on the 1B3 4160 volt safety related bus which provided a signal for the 1B EDG output breaker to close on to the 1B3 4160 volt bus.

At 2242, offsite power was restored to the 1B3 4160 volt bus and the 1B Emergency diesel generator output breaker was opened. At 0109 on November 23, utility Instrument and Control Maintenance personnel reset the block permissive signal for the low Pressurizer pressure Safety Injection Actuation Signal (SIAS) by lifting lead YYY1 on PT-1102D.

CAUSE OF THE EVENT

The cause of the event was due to pressure transmitters PT-1102C and PT-1102D output signals drifting high which removed the SIAS block signal. The Emergency Response Data Acquisition and Display System (ERDADS) (EIIS:IU) indicated that the C channel began drifting up at 2122 and that the D channel began drifting up at 2132. Both of these channels continued to drift upwards until both channels pegged out high. The cause of these two pressure transmitters drifting high is still under investigation.

ANALYSIS OF THE EVENT

This event is reportable under the requirements of 10CFR50.73.a.2.iv as "any event that resulted in manual or automatic actuation of any Engineered Safety Feature."

This event did not adversely affect plant operations because: 1) The utility licensed operators in the control room quickly recognized the SIAS/CIS actuation and secured the Charging Pumps (EIIS:CB) as the SIAS actuation caused letdown (EIIS:CB) to isolate. ERDADS indicated that Pressurizer pressure increased to a maximum of 72 psia during the event which is well below the Low Temperature Overpressure Protection (LTOP) setpoint of 350 psia for the Power Operated Relief Valves (EIIS:AB) at the time of the event. 2) Section 15.2.9 of the St. Lucie Unit 1 Final Updated Safety Analysis Report (FUSAR) "Loss of Offsite Power to the Station Auxiliaries" is defined as a complete loss of offsite electrical power with a concurrent turbine trip. This event is more conservative than that described in the FUSAR due to the Unit being in cold shutdown and only one of two electrical trains being lost for approximately 2.5 seconds. 3) Shutdown cooling (EIIS:BP) remained available during this event.

Therefore, the health and safety of the public were not affected by this event.



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CORRECTIVE ACTIONS

- 1) Utility licensed operators verified all components had actuated to their required position after the event by performing table 1 and 2 of Emergency Operating Procedure (EOP)-99, which is the component actuation list for SIAS and CIS.
- 2) Utility licensed operators restored offsite power to the B electrical train following the opening of the 1B2 480 volt bus tie breaker.
- 3) I&C maintenance personnel reset the SIAS block signal by lifting lead YYY1 on PT-1102D.
- 4) Utility licensed operators reset the affected components to their normal state.
- 5) I&C maintenance personnel performed loop calibrations on PT-1102C and PT-1102D. The results of this testing revealed the pressure transmitters were slow to responded to an input signal. Both pressure transmitters were replaced and tested satisfactorily.
- 6) I&C maintenance personnel tested pressure transmitters PT-1102A and PT-1102B for slow response time. Both pressure transmitter tested satisfactorily.
- 7) I&C maintenance personnel in conjunction with the original equipment manufacture are currently performing a root cause analysis.
- 8) Electrical Maintenance personnel reviewed the action of the breakers and the EDG and determined that all equipment functioned as required.

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ADDITIONAL INFORMATION

Component Failures

Manufacture: Rosemount Inc.
 Model Number: 1153GD9PB
 Device: Pressure Transmitters PT-1102C and PT-1102D
 Serial Numbers: PT-1102C (411711A) PT-1102D (408929A)

Previous Similar Events

There are no previous similar events at St. Lucie involving simultaneous drifting of pressure transmitters and causing an inadvertent ESFAS actuation.