



APR 22 2020

L-2020-070
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: 2020-001-00
Date of Event: February 22, 2020
Turbine Loss of Load Trip Found Outside Technical Specification Allowable Range Due to
Unspecified Legacy M&TE or Calibration Deficiencies

Licensee Event Report 2020-001 is being submitted pursuant to the requirements of 10 CFR 50.73 to provide notification of the subject event.

Respectfully,

A handwritten signature in blue ink that reads "Daniel DeBoer".

Daniel DeBoer
Site Director
St. Lucie Plant

DD/kwf

Attachment

cc: St. Lucie NRC Senior Resident Inspector
St. Lucie NRC Program Manager



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)
(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

1. FACILITY NAME St. Lucie Unit 2	2. DOCKET NUMBER 05000389	3. PAGE 1 OF 3
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4. TITLE
Turbine Loss of Load Trip Found Outside Technical Specification Allowable Range Due to Unspecified Legacy M&TE or Calibration Deficiencies

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
2	22	2020	2020	001	00	4	22	2020	n/a	05000
									n/a	05000

9. OPERATING MODE 6	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
10. POWER LEVEL 0%	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Ken Frehafer, Licensing Engineer	TELEPHONE NUMBER (Include Area Code) (772) 467-7748
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO ICES	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO ICES
X	JC	63	U075	Y					

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: _____ DAY: _____ YEAR: _____
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On February 22, 2020, St. Lucie Unit 2 was in Mode 6 for the SL2-25 refueling outage. During performance of the periodic outage calibration of the reactor protection system (RPS) turbine loss of load pressure switches, the as-found trip setpoint value for all four channels were outside the Technical Specification (TS) allowable values. The subject pressure switches were recalibrated, tested satisfactorily, and returned to service.

The actual cause of the event was indeterminate. The most likely match for the observed condition was inadequate calibration of the pressure instruments due to either legacy M&TE or calibration deficiencies. Corrective actions are planned to revise the calibration procedures to require replacement of any pressure switches requiring large adjustments.

Reactor Trip on Turbine Trip is not credited for reactor safety. It is an equipment protection trip. Additionally, the as-found setpoints would have had no measureable impact on RPS performance during a postulated turbine trip. Therefore, this event had no impact on the health and safety of the public.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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St. Lucie Unit 2	05000389	YEAR	SEQUENTIAL NUMBER	REV NO.
		2020	- 001	- 00

NARRATIVE

Description

On February 22, 2020, St. Lucie Unit 2 was in Mode 6 for the SL2-25 refueling outage. During performance of the periodic outage calibration of the reactor protection system (RPS) [EII:JC] turbine loss of load pressure switches [EII:63], the as-found trip setpoint value for all four channels were below the Technical Specification (TS) trip setpoint of greater than or equal to 800 psig. The subject pressure switches were recalibrated, tested satisfactorily, and returned to service.

Cause of the Event

The cause of this event was indeterminate. Review of past maintenance history did not reveal any issues with the pressure instrument and the maintenance and test equipment (M&TE) calibration records used during the past surveillances. Instrument drift was considered but ultimately refuted as all four pressure switches did not exhibit random behavior in either magnitude or direction between the as-found/as-left conditions during the SL2-23, SL2-24, and SL2-25 calibrations. The best match for the observed condition was either legacy M&TE or calibration deficiencies.

In SL2-25, all four pressure switches were found to be out of tolerance low on February 22, 2020. Adjustments were made and the as left values for the pressure switches were in specification. A post calibration-check of the M&TE gauge used was performed on February 23, 2020 with no issues identified. Additional calibration checks were performed on the pressure switches on March 11, 2020 with the turbine emergency trip system secured and on March 13, 2020 with the turbine emergency trip system at pressure. Both were completed with satisfactory results. Procedure changes will be implemented to add an additional requirement where any adjustment of greater than 200 psi will require pressure instrument replacement.

Analysis of the Event

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as “any operation or condition which was prohibited by the plant’s Technical Specifications. FPL deduced that the instrument setpoints were inadequately adjusted during outage calibrations and remained outside TS allowables for the operating cycle.

The turbine emergency trip header instruments are subject to a procedural scheduled maintenance calibration check and adjustment at each refueling outage. They are adjusted for a decreasing trip pressure of 1,000 psig. The TS trip setpoint is greater than or equal to 800 psig. This trip is normally bypassed with reactor thermal power less than 15 percent power and was therefore not required at the time of discovery.

The instruments, PS-22-95A, -95B, -95C and -95D, are same-model mechanical pressures sensors with a normal turbine emergency trip header input pressure of 2,000 psig. The turbine fluid system pressure control system maintains fluid system pressure between 2100 and 1800 psig by the unloader valve, which directs the running pump discharge back to the reservoir when the upper pressure is reached. During a turbine trip, emergency trip fluid header pressure is released to the reservoir. The modeled turbine emergency trip header pressure and behavior demonstrated during the monthly functional testing of the turbine emergency trip system show a binary pressure profile in operation and in the tripped condition. When in service, the pressure is approximately 2,000 psig. When tripped, the pressure is nominally 80 psig. The transition time from in service to tripped is less than 3 seconds. The reference calculation for the instruments establishes the setpoint, but it does not specify any time requirements for operation. Therefore, the time difference of a trip occurring at either 1,000 psig or 500 psig is not particularly significant for the RPS Loss of Load trip function.



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NARRATIVE

Safety Significance of the Event

The function described above is described in the St. Lucie licensing bases as a quality related function that is provided for equipment protection, and not for reactor protection. This is consistent with NUREG 1432, Revision 4, Volume 2 TS Bases of the Standard Technical Specifications for Combustion Engineering Plants.

While the instruments were outside the allowable band for the TSs, they still performed the function of detecting decreasing turbine emergency header pressure and initiating the associated RPS trip.

Based on the preceding, the turbine emergency header pressure instrument setpoints had no impact on the health and safety of the public.

Corrective Actions

The pressure instruments were recalibrated and placed back in service.

The following are the actions planned by St. Lucie and these actions are being tracked by the corrective action program (CAP):

1. Procedure changes are planned to ensure the instruments will be replaced following any calibrations adjustments greater than 200 psi.

Failed Components Identified

Name: PRESS SW (63-1/ET/710) FOR TURB EMERG TRIP SIGNAL TO RPS CAB

Manufacturer: UNITED ELECTRIC CONTROLS

Model: J302-612

Tags: PS-22-95A, -95B, -95C and-95D

Similar Events

None