

**ENGINE SYSTEMS, INC.**

175 Freight Road, Rocky Mount, NC 27804

Telephone: 252/977-2720

Fax: 252/446-1134

**TELEFAX**

**Date:** July 19, 2019  
**Company:** NRC Operations Center  
**Fax Number:** 301/816-5151  
**Verification No.:** 301/816-5100  
**Reference:** Report No. 10CFR21-0125, Rev. 0  
**From:** Dan Roberts  
**Page:** 1 of 5

---

Dear Sir:

Following this cover is a copy of our Report 10CFR21-0125, Rev.0, for a 10CFR21 reportable notification on a signal converter transmitter, P/N SCT/4-20MA/4-20MA/24DC/-LIM-TA[DCM]. This is a follow-up to our interim report 10CFR21-0125-INT, Rev. 0, issued on June 5, 2019. Our evaluation determined that the deviation is reportable in accordance with 10CFR21 Part 21.

A copy of the report will be mailed to the NRC Document Control Desk and to our affected nuclear customer.

Should you have questions, please let us know.

Sincerely,

ENGINE SYSTEMS, INC.

Dan Roberts  
Quality Manager

/sjw



**ENGINE SYSTEMS, INC.**

175 Freight Road, Rocky Mount, NC 27804

Telephone: 252/977-2720  
Fax: 252/446-1134

**Report No. 10CFR21-0125**  
**Rev. 0: 07/19/19**

**10CFR21 REPORTING OF DEFECTS  
AND NON-COMPLIANCE**

**COMPONENT:** Signal Converter Transmitter  
P/N SCT/4-20MA/4-20MA/24DC/-LIM-TA[DCM]

**SYSTEM:** Steam Turbine Control

**CONCLUSION:** Reportable in Accordance with 10CFR21

Prepared By:     *Ju Lin*      
Engineering Manager

Date:     7/19/19    

Reviewed By:     *Dan Roberts*      
Quality Assurance Manager

Date:     7/19/19

Report No. 10CFR21-0125

Record of Revisions  
Page: 1 of 1

REV	DATE	PAGE	DESCRIPTION
0	07/19/19		Initial issue.

Report No. 10CFR21-0125  
Revision: 0  
Date: 07/19/19  
Page: 1 of 2

### SUMMARY

On June 5, 2019, Engine Systems Inc. (ESI) issued interim report 10CFR21-0125-INT, rev.0 regarding an identified deviation for which ESI was unable to complete an evaluation within the 60-day requirement. Per the interim report, ESI committed to complete the evaluation by July 31, 2019. The evaluation is now complete and the deviation is determined to be reportable in accordance with 10CFR Part 21.

Pursuant to 10 CFR 21.21(d)(4), ESI is presenting the required information as follows:

- (i) Name and address of the individual or individuals informing the Commission.

<i>John Kriesel</i>	<i>Dan Roberts</i>
<i>Engineering Manager</i>	<i>Quality Manager</i>
<i>Engine Systems Inc.</i>	<i>Engine Systems Inc.</i>
<i>175 Freight Rd.</i>	<i>175 Freight Rd.</i>
<i>Rocky Mount, NC 27804</i>	<i>Rocky Mount, NC 27804</i>

- (ii) Identification of the basic component supplied within the United States which fails to comply or contains a defect.

*Signal Converter Transmitter, P/N SCT/4-20MA/4-20MA/24DC/-LIM-TA[DCM].*

- (iii) Identification of the firm supplying the basic component which fails to comply or contains a defect.

*Engine Systems Inc. (ESI)*

- (iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

*A power inverter transformer, internal to the signal converter transmitter, failed shorted. The transformer failure adversely affected other circuit board mounted components which prevented the device from functioning properly.*

*The signal converter transmitter is a component of a turbine control panel. Within the panel, the transmitter is used to sense the customer's remote speed setpoint 4-20 mA input signal and convert the signal to an isolated 4-20 mA output signal which is transmitted to the turbine control. The transmitter includes a limiting function where if the input signal is below 4 mA, the minimum output is limited to 2.7 mA and if the input signal is above 20 mA, the maximum output is limited to 21.3 mA. Since the signal converter transmits the customer's remote speed setpoint input to the turbine control, operability of the device is critical to operation of the RCIC turbine control system. Therefore, a failure of the signal converter would adversely affect the RCIC turbine control system and thus may affect the safe shutdown of the reactor.*

- (v) The date on which the information of such defect or failure to comply was obtained.

*April 6, 2018*

- (vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

<i>ESI Sales Order</i>	<i>End User</i>	<i>End User P.O.</i>	<i>Qty</i>	<i>C-of-C Date</i>	<i>Mfg Serial Number</i>
<i>8001553</i>	<i>Cooper Nuclear Station (supplied through Dresser-Rand)</i>	<i>Contract 09-69A P.O. 200441 (D-R)</i>	<i>1</i>	<i>09/28/2015</i>	<i>2379741</i>

*Notes: (1) The signal converter was installed in a control panel assembly P/N 8001553-01 (qty 1 per panel).  
(2) This is the failed device; therefore, no other suspect devices are installed in safety-related service.*

Report No. 10CFR21-0125  
Revision: 0  
Date: 07/19/19  
Page: 2 of 2

- (vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

For Cooper Nuclear:

*The failed component has been removed and replaced with a spare transmitter from a different batch. No further action is necessary.*

For ESI:

*The previous design transformer (used in the failed transformer) was discontinued by transformer manufacturer in 2016 which required the signal converter transmitter manufacturer to source a new transformer. The new transformer has the same functionality with a slightly different form factor which minimizes the potential for common cause failure with the original style transformer. Therefore, no additional actions are required since a different transformer is in current use. ESI has included a verification of the current transformer design in the commercial grade dedication package.*

- (viii) Any advice related to the potential defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

N/A