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October 5, 2012

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Subject: 10CFR21 Reporting of Defects and Non-Compliance -
Engine Systems, Inc. Report No. 10CFR21-0106, Rev. 0

EMD (Detroit Switch) Temperature Switch – Potential Missing Set Screw

Dear Sir:

The enclosed report addresses a reportable notification on an EMD (Detroit Switch) temperature switch – potential missing set screw.

A copy of the report has been mailed to our affected nuclear customers.

Please sign below, acknowledging receipt of this report, and return a copy to the attention of Document Control at the address above (or, fax to number 252/446-1134) within 10 working days after receipt.

Yours very truly,

ENGINE SYSTEMS, INC.

Susan Woolard

Susan Woolard
Document Control

Please let us know if ANY of your mailing information changes - name of recipient, name of company/facility, address, etc. Mark the changes on this acknowledgment form and send to us by mail or FAX to the number above.

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ENGINE SYSTEMS, INC.
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Report No. 10CFR21-0106
Rev. 0: 10/4/12

10CFR21 REPORTING OF DEFECTS AND NON-COMPLIANCE

COMPONENT: EMD (Detroit Switch) temperature switch – potential missing set screw

SYSTEM: Emergency Diesel Generator

CONCLUSION: Reportable in Accordance With 10CFR21

Prepared By: _____ Date: 10/4/12
Engineering Manager

Reviewed By: _____ Date: 10-4-12
Quality Assurance Manager

REV	DATE	PAGE	DESCRIPTION
0	10/4/12		Initial issue.

COMPONENT:

EMD (Detroit Switch) temperature switch – potential missing set screw

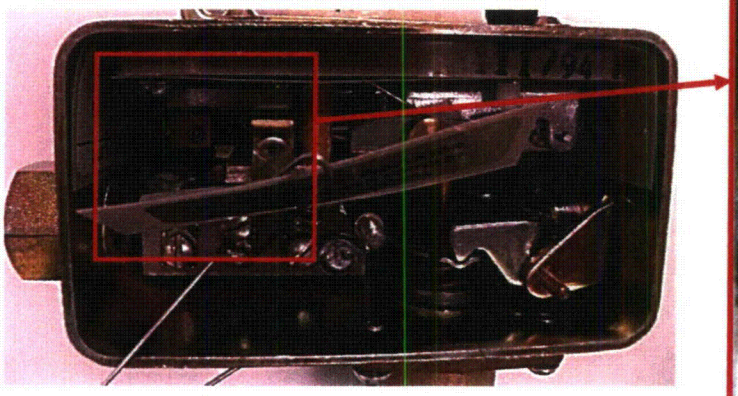
SUMMARY:

Engine Systems Inc. (ESI) began a 10CFR21 evaluation on 9/18/2012 after an ESI test technician found a set screw in one of the oil bath stations of the temperature test fixture. After evaluating all components that were tested on the fixture, it was determined that this set screw is the same length, thread size and style as the set screw utilized in the EMD/Detroit temperature switches to lock the differential adjustment screw. The other components tested on the fixture did not contain such a set screw. Either an extra set screw was inside a temperature switch and it fell into the test fixture oil bath when the test technician removed the switch cover; or, the test technician dropped the set screw after removing it from a temperature switch to adjust the differential setting of the switch. If the latter occurred, then the potential exists that a temperature switch was shipped without the differential adjustment screw locked and therefore the switch settings could drift over-time from exposure to vibration on the EDG skid. ESI has identified the time period in which this could have occurred to be 4/2/2012 to 9/18/2012. The suspect temperature switches are EMD parts manufactured by Detroit Switch. These are located in the engine cooling water and lube oil systems for low standby lube oil temperature alarm, high coolant temperature alarm/shutdown and coolant immersion heater control applications.

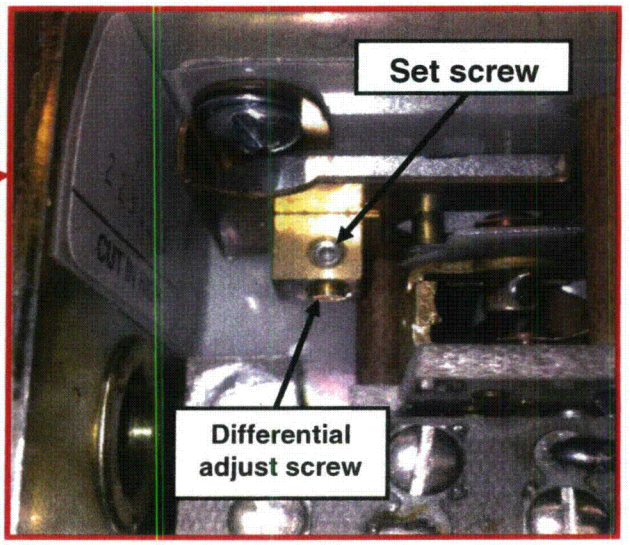
The evaluation was concluded on 10/3/2012 and it was determined that this issue is a reportable defect as defined by 10CFR21. If a switch applied in the immersion heater control application experiences significant setpoint drift, it is possible that the standby temperatures of the lube oil and coolant systems may be degraded enough to affect the start time of the diesel generator.

Discussion:

The set screw found in the temperature test fixture oil bath is 1/8" long with #6-32 threads. This is the same length, thread size and style as the set screw used in EMD/Detroit temperature switches to lock the differential adjustment screw.



TYPICAL EMD/DETROIT TEMP SWITCH
(shown with cover removed)



SET SCREW LOCATION

Affected users and shipments:

A listing of the suspect temperature switches and the corresponding customer information for each is provided in Table 1.

Part Number	Qty.	ESI S/N	Ship date	Customer	Customer PO
9544836	1	3008686-1.1-1	5/31/12	TVA-Watts Bar	00001690/280405
9544836	2	3008457-1.1-1 3008457-1.1-2	5/24/12	Entergy-ANO	10314337
9544837	1	3009631	6/21/12	Exelon-Lasalle	000703, rlse 12295
9544841	2	8002029-1.1-1 8002029-4.1-1	9/6/12	Exelon-Clinton	000703, rlse 12257
9544841	2	3010254-1.1-1 3010254-1.1-2	9/6/12	TVA-Watts Bar	400001690/36116
9544842	1	3009662-1.1-1	9/7/12	Exelon-Clinton	000703, rlse 12299
9544842	2	3009552-1.1-1 3009552-1.1-2	6/25/12	PGS-Cofrentes	N2012/036

TABLE 1: SUSPECT TEMPERATURE SWITCHES

Impact on Operability:

Part number 9544841 is used to control the coolant immersion heater which maintains the temperature of the preheat system at the appropriate temperature to ensure fast starting of the EDG. For this temperature switch, setpoint drift could impact the starting time of the diesel generator; therefore, the ability of the diesel generator to perform its safety related function could be impacted

Part number 9544842 performs an alarm only function for low standby oil temperature. Setpoint drift of this switch will not impact the ability of the diesel generator from performing its safety function.

Part number 9544836 has been utilized for either an alarm only function for high coolant temperature or for high coolant temperature shutdown (depending upon the vintage of the unit). The shutdown function is bypassed during emergency mode operation; therefore, setpoint drift of this switch will not impact the ability of the diesel generator from performing its safety function.

Part number 9544837 performs a high coolant shutdown function. The shutdown function is bypassed during emergency mode operation; therefore, setpoint drift of this switch will not impact the ability of the diesel generator from performing its safety function.

Only part number 9544841 has been determined to have the potential to impact the safety related operability of the diesel generator; however, all suspect temperature switches are included in this notification to alert users of the potential for setpoint drift.

Corrective action:

All affected users should inspect the suspect switches (see Table 1) for presence of the set screw at their earliest convenience. If the set screw is missing, the temperature switch should be returned to ESI for rework.

To inspect the switch, perform the following:

1. Loosen the screw located in the center of the temperature switch cover.
2. Remove the cover, the mounting screw and cover gasket will remain attached to the cover.
3. Look behind the insulator to access the differential adjust screw.
4. Verify that set screw is installed.
    a. If installed, re-install the cover; temperature switch is acceptable.
    b. If not installed, return the temperature switch to ESI for rework.