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January 10, 2001

U.S. Nuclear Regulator Commission
Document Control Desk
Mail Stop 0-11A1
Washington, DC 20555

Subject: 10CFR21 Reporting of Defects and Non-Compliance -
Engine Systems, Inc. Report No. 10CFR21-0080

Agastat 7000 and E7000 series time delay relays applied in Woodward 2301A
low voltage circuitry

Dear Sir:

The enclosed report addresses a reportable defect and the corrective action to be taken by users with Agastat 7000 and E7000 series time delay relays applied in low voltage circuitry of Woodward 2301A electronic governors.

Should you have any questions, please feel free to call.

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

Yours very truly,

ENGINE SYSTEMS, INC.

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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RECEIVED: _____

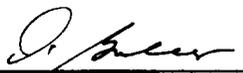
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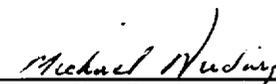
10CFR21 REPORTING OF DEFECTS
AND NON-COMPLIANCE

COMPONENT: Agastat 7000 and E7000 series relays

SYSTEM: Diesel generator control systems

CONCLUSION: Defect is reportable in accordance with 10CFR21.

PREPARED BY:  DATE: 1/9/01
Engineering Manager

REVIEWED BY:  DATE: 1/9/01
Quality Assurance Manager

SUMMARY:

Engine Systems Inc. (ESI) has received notification about a problem relating to the use of Agastat time delay relay contacts in Woodward 2301A electronic governor circuitry. The problem was recently reported by Florida Power and Light – Turkey Point. In January 1999, Thomas & Betts Corporation issued a 10CFR21 notification which identified potential contact continuity problems for their E7000 series time delay relays in applications below 1A, 28 VDC. Nuclear safety diesel generators provided by ESI utilize 125 VDC control circuits; however, the Woodward 2301A has an internal power supply which provides approximately 20 VDC (at 2301A terminal 0) for signal inputs to the control (2301A terminals 14, 17, 18 & 19). The signal current for these inputs is approximately 9 ma; therefore, use of Agastat contacts in these applications could cause operability problems.

In some applications, ESI has utilized Agastat E7000 and 7000 series contacts in 2301 terminal 17 and terminal 19 circuits. Typical circuits are provided in Exhibit 1.

Terminal 17 is the 2301A "open for minimum fuel" input. A normally closed contact from the engine cooldown timer (designations TD4 or NST) opens to shutdown the engine after the cooldown period has elapsed. **Improper contact continuity (contact resistance greater than 1 ohm) could erroneously cause the 2301A to send a shutdown signal to the engine governor actuator during a safety event.**

Terminal 19 is the 2301A "close for rated speed" input. A normally open contact from the idle delay timer (designations LWD, ITD, TD2 or TD10) opens to run the engine at idle speed for a warm-up period (usually 1 to 3 minute) and then closes to accelerate the engine to rated speed during non-emergency operation; or, the contact opens after a stop signal is initiated to delay activating idle operation until the generator circuit breaker opens. In either case, improper contact continuity could cause the engine to remain at idle speed. The 2301A terminal 19 time delay contacts are by-passed during emergency mode operation and therefore do not affect the safety related function of the diesel generator.

Agastat 7000 series time delay relays are the commercial equivalent of the E7000 nuclear relays; therefore, the contact continuity issue reported by Thomas & Betts for the E7000 series relays is considered to apply to the 7000 series relays also.

COMPONENT:

Agastat 7000 series and E7000 series time delay relay contacts connected to Woodward 2301A electronic governor (input terminal 17).

CUSTOMERS AFFECTED:

ESI has reviewed their drawing files and determined the following affected customers.

Florida Power & Light – Turkey Point unit #3 and unit #4
Wisconsin Electric – Point Beach G03 & G04
Knolls Atomic Power Laboratory
KRSKO – Slovenia
CFE Laguna Verde - Mexico

DEFECT:

Improper time delay relay contact continuity (contact resistance greater than 1 ohm) could activate the 2301A electronic governor "minimum fuel input" (shutdown) and there-by cause the diesel generator to fail-to-start or to shutdown during a safety event.

CORRECTIVE ACTION:

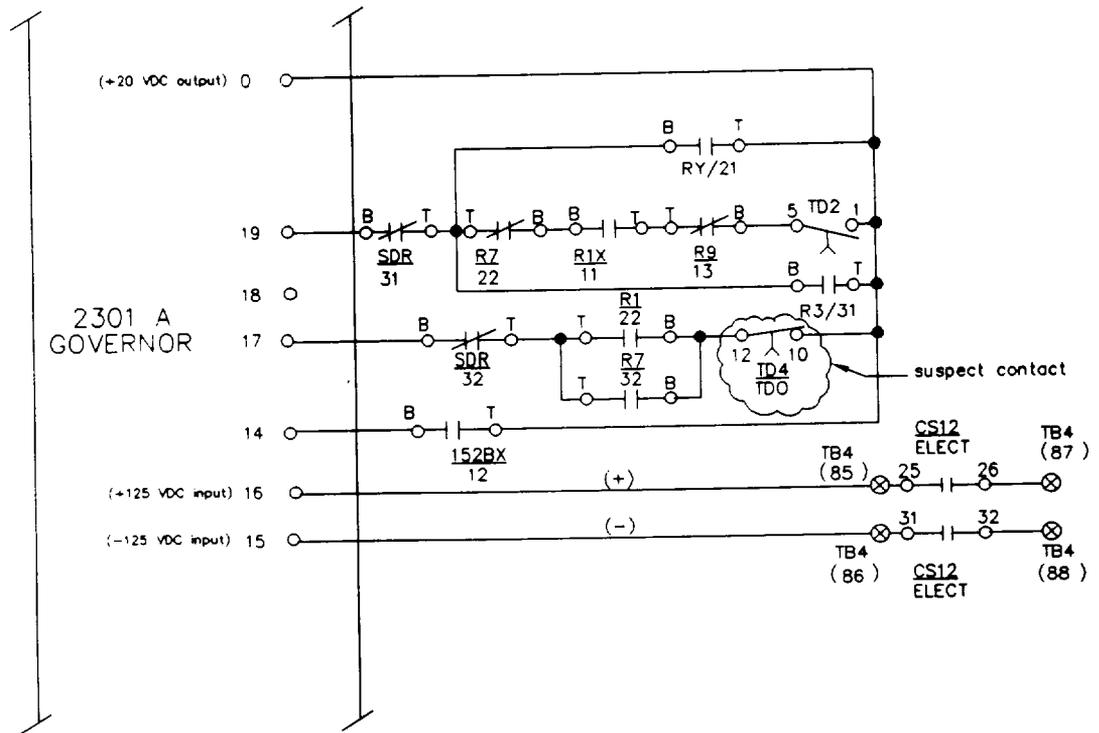
ESI recommends eliminating the suspect time delay relay contacts in the 2301A terminal 17 circuit. The diesel generators have a redundant shutdown feature via activation of the EGB governor actuator's shutdown solenoid; thus, both the 2301A and the EGB simultaneously receive a shutdown signal. The EGB shutdown signal is in a 125 VDC circuit and therefore contact continuity is not a concern in this application. Eliminating the contact in the 2301A shutdown circuit will remove the safety concern without affecting operation of the diesel generator.

The contact can be eliminated by removing the contact from the 2301A terminal 17 circuit or by simply placing a jumper across the contacts. Relay and contact designations for affected users are listed below:

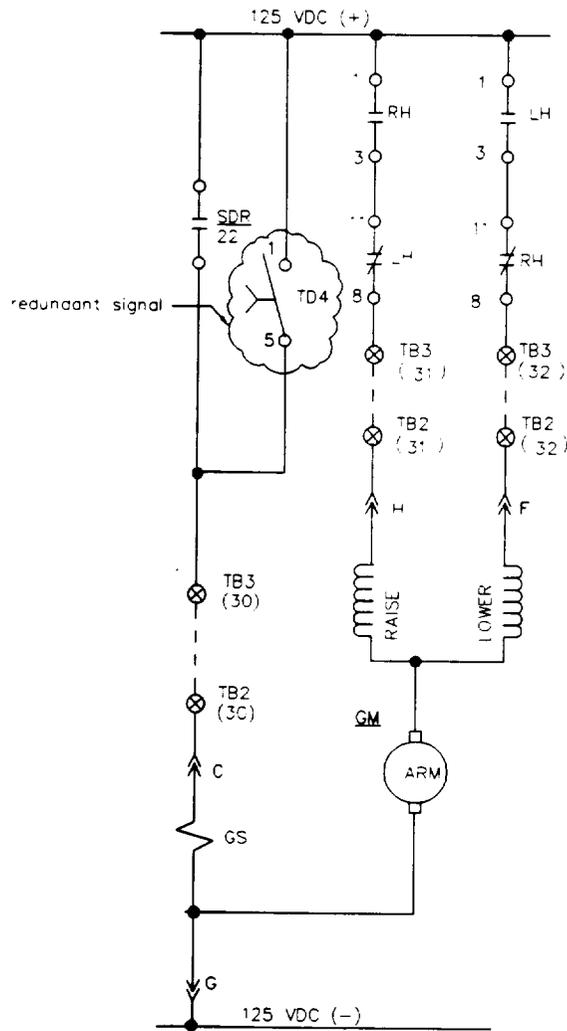
<u>Customers</u>	<u>2301 term 17</u>
FP&L –Turkey Point #3:	NST contact 4-6
FP&L –Turkey Point #4:	TD4 contact 12-10
Wisc Elect - Pt. Beach G03/G04	TD4 contact 4-6
Knolls Atomic Power Labs	TD4 contact 4-6
KRSKO – Slovenia	TD4 contact 4-6
CFE Laguna Verde - Mexico	TD4 contact 4-6

EXHIBIT 1

TYPICAL CONTROL CIRCUITRY



TYPICAL 2301A INPUT CIRCUITRY



TYPICAL GOVERNOR SHUTDOWN SOLENOID CIRCUITRY