

I. Description of Deficiency:

Rosemount Incorporated has identified a problem with the gross failure output function of both the Master and Slave Trip Units of the Rosemount Model 510 DU Trip Calibration System. The problem identified is that when the gross failure is energized and the trip unit is operated through the preset trip points, the gross failure output may inadvertently reset.

During proper operation, the gross fail output will turn on when the transmitter current passes out of the normal transmitter current range (normal range is 4 to 20 mA). A gross fail indicator light will turn on and the gross fail output will remain on until the transmitter current returns to the normal current range and the reset button is manually depressed on the front panel of the trip unit.

However, it was found that on some units, as the transmitter current changes from a gross fail condition to a normal condition and if the trip point is passed during this change, the transient from the switching of the trip output load can reset the SCR (Silicon-Controlled Rectifier). For proper operation, only the reset button should reset the SCR.

II. Safety Implications:

The gross failure output is used to inform the operator of the bypass or inoperable status of the systems when the trip units are in the calibration mode per NRC Regulatory Guide 1.47. The gross failure light gets its power from the calibrator command voltage which is unaffected by the operation of the SCR. Thus at no time while in the calibrate mode will the operator lose the gross failure light. In addition, the SCR is considered by Rosemount as a non-essential component of the trip unit. Normal operation calls for the SCR to be manually reset by a switch on the front of the trip unit. The malfunction reported by Rosemount was that this SCR would reset prematurely before being manually reset. The gross failure output signal would not be kept from being generated when in the normal mode of operation, and system design is such that once the gross failure signal exists, the protective action it causes to occur cannot be reversed when the SCR resets and the gross failure output signal disappears.

III. Corrective Action Taken:

The trip units for Units 1 & 2 have been returned to Rosemount for retrofit. The retrofit involves performing an inductive load test to determine acceptability of the units.

Details of the corrective actions are identified on Management Corrective Action Report, MCAR-GGNS No. 50.