

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

June 27, 1980

IE Circular No. 80-16

OPERATIONAL DEFICIENCIES IN ROSEMOUNT MODEL 510DU TRIP UNITS AND MODEL 1152
PRESSURE TRANSMITTERS

Description of Circumstances:

The NRC has recently been advised through a 10 CFR 21 report that operational deficiencies exist in Rosemount Inc. Model 510DU trip units and Model 1152 pressure transmitters as follows:

MODEL 510DU TRIP UNITS

The 510DU trip units have common mode failures of two switches; S1 in the trip status output, LED logic circuit and S2 in the trip output logic circuit. The trip units involved are those with serial numbers 3001 to 4203. The 510DU units having serial numbers within this range that are not trip units are not affected. (i.e., Card Files, Readout Assemblies, Calibration Units, etc.) Malfunction of these switches appears as an open circuit in the output logic upon receipt of an actual trip signal. Switch (S2) failure could result in failure to automatically activate a safety function.

MODEL 1152 PRESSURE TRANSMITTERS

The model 1152 pressure transmitters have a common mode failure of a capacitor when the transmitter operating environmental temperature is greater than 175°F, and when the damping potentiometer is rotated clockwise. The failure results in a decrease in transmitter output current of up to 10 percent of the correct current. For example, when the transmitter is used in an indication circuit, the parameter indication would be correspondingly lower than the correct value if the capacitor failure occurred. The failure potentially involves all pressure transmitters with the following model designations:

Rosemount Pressure Transmitter Models:

1152 - - - E - - TO280
1152 - - - E - - TO445
1152 - - - E - - TO400

Available information indicates that the problems outlined above have been reported to each customer who was furnished the Model 510DU trip units and Model 1152 pressure transmitters.

RECOMMENDED ACTION FOR LICENSEES AND HOLDERS OF CONSTRUCTION PERMITS

All licensees of nuclear power reactors and holders of construction permits should be aware of the potential problems discussed above. It is recommended that the following actions be taken:

1. Determine if your facility has installed or plans to install the Rosemount Model 510DU trip units and/or the pressure transmitters described herein in any safety-related equipment.
2. If it is determined that your facility has installed or plans to install any of the affected units described herein, contact the supplier for performance of the required modifications to the units to resolve the problems.
3. Modifications should be performed on all affected units prior to plant operation. If the affected units are installed in plants that are operating, the following actions are recommended for continued operation until the units are modified.

a. 510DU Trip Units

A functional test verifying proper operation of the trip units should be performed.

b. Model 1152 Pressure Transmitters

On pressure transmitters that are affected and that may be subjected to operating environmental temperatures greater than 175°F, the transmitters should be operated with the damping potentiometer (R12) in the fully counterclockwise position.

CAUTION

The circuit output should be monitored to assure that no action detrimental to operation results from placing R12 in the counterclockwise position, such as spurious tripping caused by unstable operation.

No written response to this circular is required. If you require additional information regarding this matter, contact the Director of the appropriate NRC Regional Office.

RECENTLY ISSUED
IE CIRCULARS

Circular No.	Subject	Date of Issue	Issued to
80-16	IE Circular No. 80-16, Operational Deficiencies in Rosemount Model 510DU Trip Units and Model 1152 Pressure Transmitters	6/27/80	All power reactor facilities with an OL or CP
80-15	Loss of Reactor Coolant Pump Cooling and Natural Circulation Cooldown	6/20/80	All power reactor facilities with an OL or CP
80-14	Radioactive Contamination of Plant Demineralized Water System and Resultant Internal Contamination of Personnel	6/24/80	All holders of Power and Research Reactor licenses (Operating and Construction Permits), and Fuel Cycle licensees
80-13	Grid Strap Damage in Westinghouse Fuel Assemblies	5/18/80	All holders of Reactor OLs and CPs
80-12	Valve-Shaft-To-Actuator Key May Fall Out of Place When Mounted Below Horizontal Axis	5/14/80	All holders of Reactor OLs and CPs
80-11	Emergency Diesel Generator Lube Oil Cooler Failures	5/13/80	All holders of a power reactor OL or CP
80-10	Failure to Maintain Environmental Qualification of Equipment	4/29/80	All holders of Reactor OLs and CPs
80-09	Problems With Plant Internal Communications Systems	4/28/80	All holders of a power reactor OL or CP
80-08	BWR Technical Specification Inconsistency - RPS Response Time	4/18/80	All General Electric BWR's holding a power reactor OL
80-07	Problems with HPCI Turbine Oil System	4/3/80	All holders of a power reactor OL or CP
80-06	Control and Accountability Systems for Implant Therapy Sources	4/14/80	Medical licensees in Categories G and G1
80-05	Emergency Diesel-Generator Lubricating Oil Addition and Onsite Supply	4/1/80	All holders of a power reactor OL or CP