APPLICATION SUMMARY
A major owner and operator of a transportation and liquids pipeline company has difficulty with mechanical switches leaking fuel whenever vacuum is present in the pipeline. Leaks of hazardous materials (fuel) present an explosion danger, require ground remediation and the vapors can cause harm to the environment. Transmitters were considered to replace the faulty competitive switches but, due to the high cost of wiring changes and inability to provide local switching, they were ruled out. The One Series 2X2D00P18 was chosen due to the piezo-resistive welded sensor, solid-state reliability and 2-wire power.

PROBLEM: FUEL LEAKS
Various grades of fuel are transported through a common pipeline system. Ambient temperatures can vary significantly, creating deep vacuum for up to several hours inside the pipe. Competitive mechanical switches that monitor the pipeline pressures are leaking the fuel as a result of this repeated compound pressure cycling – vacuum through zero to 3000 psi. At up to 27”Hg, the mechanical switch’s sensor components separate, allowing significant amounts of fuel to slip past the sensor, enter the enclosure and eventually spill onto the ground.

THE ONE SERIES SOLUTION
• Uses an all-stainless steel, welded diaphragm 316L sensor capable of withstanding full vacuum for several days without any calibration issues
• No elastomers or o-rings come in contact with the fuel
• Every sensor is helium leak-tested to check the integrity of the sensor body and diaphragm welds for leak paths
• The sensor diaphragm deflects only 0.0005 inches so repeated applications of vacuum and positive pressure do not cause wear
• The digital display eliminates the need for a mechanical gauge, eliminating additional leak paths
• 4-20 mA output provides re-transmitted process variable via SCADA to a central control station