Pressure Monitoring on LNG Road Tankers

Industry: LNG Storage
Products: EJX530B (Gauge Pressure Transmitter)  
YFGW710 (Field Wireless Integrated Gateway)

Introduction
In the event of a gas line shut down, gas supply must be maintained for a period of time with the use of LNG stored in road tankers. Each tanker must have its pressure monitored to prevent an over pressure situation arising.

Benefits
- Enabled remote pressure monitoring of gas tanker trucks
- Minimized operation effort (manual reading)
- Increased personal safety by removing the operations from a potentially dangerous environment

Requirements
Automatic monitoring is required so manual readings of pressure gauges was not allowed. The road tankers are driven on and off site for loading and unloading. When a tanker arrives on site they will be told which bay to park in and the wireless system will automatically reconnect to the wireless transmitter equipped on the tanker within a short period of time. The pressure gauges and wireless system conditions will be monitored via a remote SCADA system using MODBUS TCP communications. The tanker pressure will be measured and high alarms in the SCADA system will be set at around 5.5 bar. The rate of change in the pressure will be monitored and the tanker will be taken for emptying when the rate of increase in the pressure reaches predefined limits. If there is a problem system alarms should be automatically generated.
Solution
EJX530B wireless pressure transmitters were mounted in a box at the side of the tanker with mechanical damping for shock absorption when the tanker is on the road. Remote antennas were installed to gain max height for line of sight. When a tanker is off site the wireless transmitter will go into a radio silence mode to save battery consumption.

A combination of Daqstation/MW, FieldMate and system diagnostics tools was used to generate an alarm and provide more information on any issue with the ISA100 wireless sensor network.

Conclusion
The complete system has been in successful operation for approximately two years now. Further enhancements are planned to improve the effectiveness of the ISA100 wireless sensor network by upgrading the gateways to the latest technology (separate wireless access point YFGW510 and management station YFGW410).

Yokogawa has a proven track record of delivering reliable, scalable and open technologies for a century. ISA100 wireless solutions address the specific challenges of the industrial automation industry while lowering cost of ownership for our end users and maximizing their return on investment.