Rupture Protection, Blanket or PRV Monitoring, and Emission Parameters

The MVS 3002 "Multi-function Vapor Sensor" probe provides additional safety to what API Standard 2350 5th Edition should have included, i.e. operational conditions that can cause spillage on the ground from Cone Roof Tanks.

- **Rupture Protection (<u>Over Pressure</u> & <u>Vacuum</u>)**

Both <u>**Over Pressure**</u> & <u>**Vacuum**</u> can cause structural damage to tanks resulting in spillage (loss of product, loss of storage space, environmental fines, cleanup, tank repair, etc.).

Like most MTG's for Cone Roof applications, the 3002 MVS monitors both Ambient and Vapor space to detect Over pressure or formation of a Vacuum within the tank. The 3002 MVS provides output via MODBUS RTU registers to PLC's, RTU's, or CIM's to show these alarm conditions.

Example: A customer was using a tank top mounted level gauge for both tank gauging and overfill protection. However, it doesn't monitor for the formation of a Vacuum due to too quickly pumping out of the tank. The result was structural damage to the tank and some leakage to the ground.

Example: A customer was using an MTG "Multi-function Tank Gauge" (with the same Rupture Protection as the 3002 MVS) in a northern climate during a mid winter ice storm. The customer called and asked why the gauge was indicating Over Pressure. We then asked them to stop any product movement and physically check the gauge. Within 20 minutes they called us back to tell us the Over Pressure alarm went away after clearing off a 1/2" formation of ice from the Pressure Relief Vent on top of the tank.

Just two of many examples, one cost millions, the other a sigh of relief.

- **The monitoring of Pressure Relief Vents (PRV's)**

The MVS can determine at what actual pressure they release and the ability to verify the PRV settings against historical data captured by TG Soft Server and APP Historian. It will show the actual release pressure, duration, vapor density, vapor temperature, etc.
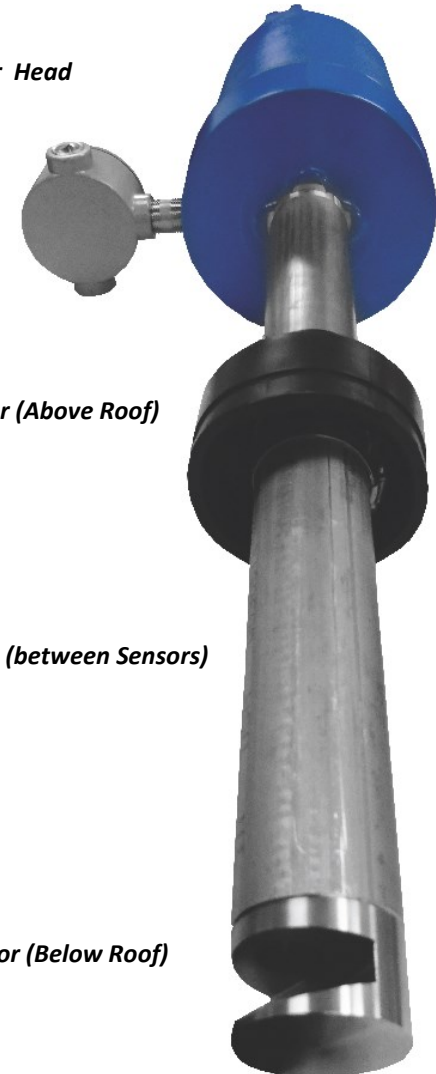
- **Continuous monitoring of Gas Blanketing Systems (API 2000)**

Transmitter Head

Ambient Sensor (Above Roof)

Mounting Flange (between Sensors) - Not shown

Vapor Sensor (Below Roof)