

Expro Excellence  
**Expro provides client unique gas void fraction (GVF) measurement to improve separator performance and accuracy**  
 Well Flow Management | Flow Surveillance



**Customer challenges**

- Industrial Vox Analyzer supplies flow measurement solutions to the oil and gas industry, including gas-liquid cylindrical cyclone (GLCC) separators – a compact two-phase separator which utilizes centrifugal and gravitational forces to separate gas and liquid phases
- Oil and water liquid flow rate is typically measured with turbine or Coriolis meters; the water cut is determined via a density measurement using either a Coriolis or microwave device
- All measurements (flow, density and water cut) assume complete separation, which is not always achievable, especially over a wide range of flow conditions and process fluid types; incomplete separation and subsequent gas carry under becomes the main source of error given the Coriolis' sensitivity to the difference in gas and liquid densities
- In heavy oil applications, separation efficiency is particularly challenging; gas in the separator liquid leg can result in significant net oil measurement errors
- Gas carry under is recognized as a major source of error however it has been impossible to measure the free gas to correct the liquid measurement in real time

**Expro Excellence**

- Expro's sonar technology measures entrained GVF and corrects the volumetric rate and fluids density measurement in real time
- Laboratory and field tests have validated the ability to correct primary phase measurement devices in presence of up to 20% GVF
- Expro's PassiveSONAR™ meters:
  - Provide an accurate real time measurement of entrained gas
  - Are the only clamp-on sensor available to measure GVF
  - Have been installed on many convention and GLCC separators
- No field shutdown or flow diversion associated with meter installation, commissioning or testing

**Value to the client**

- The GVF measurement is used to correct Coriolis measurements of volumetric flow rate and mixture density
- PassiveSONAR provides quantitative measurement of separator efficiency and enables accurate flow and net oil measurement where there is incomplete gas/liquid separation
- Enables water cut devices to accurately report net oil in the presence of entrained gas
- PassiveSONAR enables the use of small footprint GLCC technology in lieu of larger three-phase horizontal gravity separators

In partnership with



“  
**The GVF meters have been used in one of our main products. We are really happy about the performance of the meter.**”

Oswaldo A. Sanchez  
 General Manager, Industrial Vox Analyzer

Innovative solution

