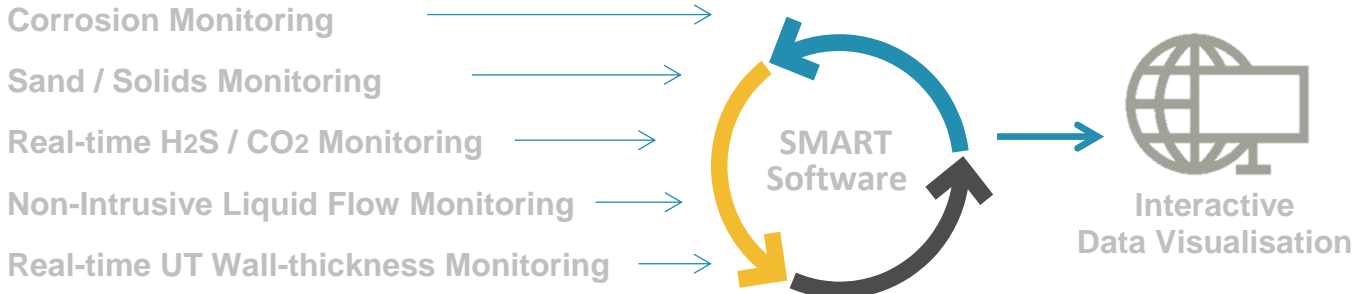




# Well Test and Frac Operations: Flow Assurance Monitoring Package



## Increased Safety

- Reduces risk / personnel exposure to potentially harmful H<sub>2</sub>S samples.
- Reduces personnel exposure to high-risk area - wall thickness monitoring



## Reduced Cost

- Realtime monitoring of multiple parameters allows well operations to continue, whilst monitoring the risk in real time.
- Reduced manual operations and onsite personnel requirement



## Real Time Decision Making

- Reduced downtime through Instantaneous data analysis that allows faster more reliable decisions



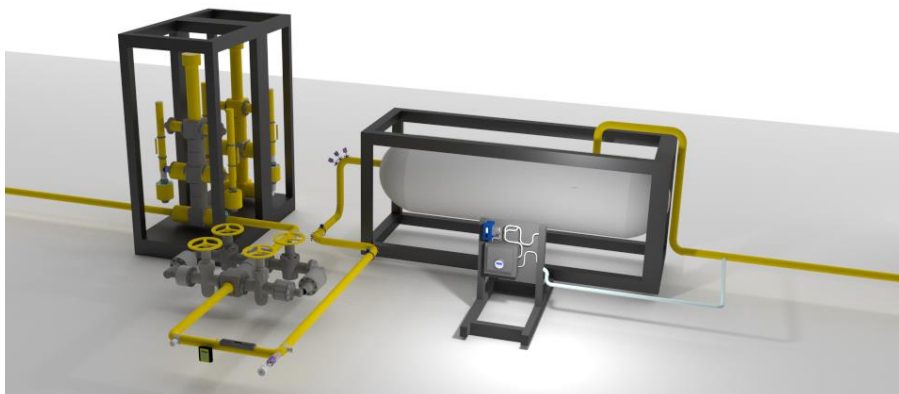
## Solids Quantification

- Integration of flowmeter allows real time solids quantification
- Dual monitoring method that can deliver volumetric flow and flow velocity



## Understand Your Well

- Measure frac fluid flowback
- Increased Real Time data allows instant, informed decision making



Sense



Understand



Perform

Aberdeen / Abu Dhabi / Kuala Lumpur

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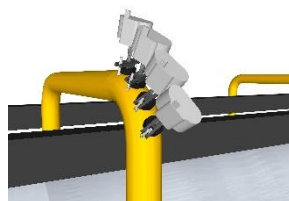
## Sand, Erosion & Corrosion Monitoring



Acoustic & intrusive sensor packages provide instantaneous detection of solids production and when combined with flow monitoring provides solids quantification.

- Increased safety** - Reducing risk and potential damage to plant
- Reduced costs** - Data redundancy via two independent measurements
- Continuous Data** - Instantaneous, data allows faster more reliable decisions

## Realtime UT Wall Thickness Monitoring



An array of installed real-time UT wall thickness sensors, measures absolute wall thickness, this monitors corrosion / erosion high-risk areas continuously.

- Increased safety** - No requirement for personnel to inspect high-risk areas
- Reduced costs** - No requirement for offshore manual operations
- Continuous Data** - Real-time identification of wall loss at high-risk areas

## Realtime H<sub>2</sub>S & CO<sub>2</sub> Monitoring



The Realtime H<sub>2</sub>S monitoring systems is a fully automated system capable of delivering real time H<sub>2</sub>S and Co<sub>2</sub> measurements up to 40% volume.

- Increased Safety** - Reduces risk / personnel exposure to harmful samples
- Fully Automated** - Automated, minimum maintenance, infield calibration
- Integration / Alarming** - Integration of data and alarms to acquisition system

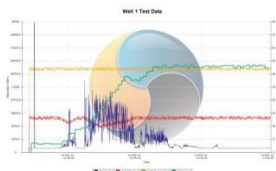
## Portable Non-Intrusive Flow Monitoring



Portable Non-Intrusive liquid flowmeter, utilises a dual monitoring method that can deliver volumetric flow and flow velocity, suitable for high solids content

- Non-Intrusive** - Allows installation and repositioning whilst flowing
- Fully Automated** - Automated, minimum maintenance, in-field calibration
- Integration / Alarming** - Realtime integration into data acquisition system

## SMS SMART Data Visualisation



3D Data Visualisation and reporting delivers insight allowing decisions to be made based on real time contextual knowledge and data analysis

- 3D Visualisation** - Intuitive data mapping and visualisation
- Integrated Alarming** - Data and alarms fully integrated into acquisition system
- Remotely accessed** - Data visibility through secure network access