

## Commercial Presentation Theatre & Process Equipment Zone (Hall 1)

Day: 25th October  
Time: 12,00 - 12,20

**SLB**

Speaker: Luca Gaddi



### Enabling Technology for Subsea Distributed Chemical Injection in Deepwater Projects

Subsea chemical injection in deepwater projects, although critical for addressing the many flow assurance challenges facing operators, can have significant costs. These are both in terms of capex for the host facility and delivery systems and opex through chemical costs over the life of the field. As water depth and step-out distances increase, along with increasing complexity in field architecture, the traditional “point-to-point” chemical distribution system becomes uneconomic. A subsea distributed approach is needed. This method delivers the chemicals to the drill center, from where they are distributed subsea to the injection points for injection into the process through a metering device. This method enables significant reduction in the chemical plant size and weight on the host facility and also the cost and complexity of the delivery umbilicals.

However, for the subsea distributed approach to be successful, a highly reliable and accurate subsea delivery and metering device is required.

For more than 10 years SLB has been developing and supplying industry-leading chemical injection metering valve (CIMV) technology. Through continuous innovation and close cooperation with industry, our latest generation of PULSE\* ultrasonic CIMV low-flow technology launched in 2017 to provide the first debris-tolerant, highly reliable and accurate subsea CIMV as the key enabling technology for successful subsea distributed chemical injection.

By combining our in-house ultrasonic nonintrusive flow measurement technology in closed loop control with a microneedle and seat throttling valve, the Cameron PULSE ultrasonic CIMV maintains the user-defined injection rate for low-dose inhibitors indefinitely, irrespective of up- or downstream system disturbances. Operating over an injection range of 0.25–600 L/h with best-in-class accuracy better than 2% of the reading above 2 L/h, the system delivers

chemical opex savings over the life of field. Communicated topside via CANbus or Modbus, the onboard process data and diagnostics give operators a clear picture of what is happening at the injection point, enabling full inhibition without the need for overdosing.

- Subsea chemical injection to address deepwater flow assurance challenges
- High capex and opex costs to operators for conventional point-to-point chemical distribution
- Enabling technology of a highly reliable and accurate subsea distributed delivery and metering device
- The latest Cameron low-flow PULSE ultrasonic CIMV, launched 2017
- Combination of ultrasonic flow measurement in closed-loop control with a throttling valve
- Best-in-class accuracy and reliability over an extremely wide operating range
- Both capex and opex savings secured for deepwater projects