

International Association of Drilling Contractors



IADC Advanced Rig Technology Spark Tank
08.30-11.30 Wednesday, 4 April 2018
IADC HQ, 10370 Richmond Ave, Suite 760; Houston, TX 77042 USA

Proceedings from 4 April IADC ART Spark Tank

The mission of the IADC Advanced Rig Technology ART Spark Tank, held on 08.30-11.30 on Wednesday, 4 April, 2018, is to provide opportunity to provide technology entrepreneurs an opportunity to pitch their products and ideas (“Sparks”) to a panel of drilling contractors and operators (“Sharks”). The purpose is to provide insights to technology developers into what matters to those they are innovating for.

IADC is grateful to its Sharks for sharing their time, talents, and expertise. Sharks for the 4 April Spark Tank are:



Sean Halloran



Theresa
Baumgartner



Paul Pastusek

- Sean Halloran, Vice President, Ensign Energy Services Inc.
- Theresa Baumgartner, Drilling Research Engineer, Shell
- Paul Pastusek, Drilling Mechanics Advisor, ExxonMobil Corp

Spark Tank Program

8:30 Coffee and networking

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9:00 Welcome & introductions – Robin Macmillan, Chair, IADC ART Committee

9:10 Safety moment, introduction to facility, & IADC antitrust policy Mike Killalea, IADC

Spark Tank presentations. Speakers have 15 minutes, with 15 minutes allotted for Panelists Q&A:

9:15 [“The New Pinnacle of Mechanical Solids Separation”](#): Jan Groeneveld, Evodos BV

Objective:

Have we reached the pinnacle of mechanical solids separation? Since the introduction of Shale shakers in 1922 we have seen various improvements to enhance solids separation and minimize associated fluid losses. However, ultrafines (10-1 micron) are still controlled via dilution. Dilution only hides the problem and does not solve it. Instead of avoiding waste, dilution adds waste which is against the main principle of waste management. Evodos technology minimizes the required fluid volume to be added and results in cost reduction.

Methods, process:

Evodos technology applies 4500G on the fluid while the travelling distance of the particles to be removed is ¼” only. The separation efficiency achieved with this technology is not possible with current technologies. Downstream of conventional centrifuges, the machines only process a volume comparable to conventional dilution volume and produces a clean drilling fluid whilst keeping the emulsion intact.

Results, conclusions:

Field demonstration with a 2-rig side by side comparison has shown the effectiveness of the Evodos technology. It not only avoided the requirement of 300 bbl's dilution volume but it furthermore was able to reduce and maintain the LGS content in the mud from 8% to 6% over a 3 well period. The secondary benefits of reducing the ultrafines attribute to higher ROP's, better wallcake and reduced formation damage. Additional applications have been demonstrated to recondition spent NAF fluids at LMP's

9:45 [“The Next Oilfield Step: A Circular Economy Approach to Reuse, Recycle, and Reduce Production Water”](#): Bill Burch, Ocota Inc.

While the economists focus on the daily fluctuations in the price of oil and natural gas, analysts rarely ever mention the enormous amounts of produced water operators have to handle. It is estimated that at least 1 billion bbls of water is produced daily at a cost of more than \$500 billion a year.

Almost all produced water currently is disposed of due to salinity and dissolved ions. Some is treated and reinjected back into conventional reservoirs for pressure maintenance of the field. But operators have faced increased scrutiny and government imposed injection limits for produced water disposal due to earthquakes being linked to salt water disposal wells. In addition, the cost of disposal has increased fivefold over the last decade.

Fresh water is the one of the three key limiting factors in the future of the oil and gas extraction. Using licensed patented carbon nanotube low energy input multi-stage flash distillation equipment technology, Ocota, Inc. is helping to transform the biggest generated waste stream in the oilfield into a value proposition for operators and service companies by helping reduce operating expenses, solving bottlenecks on finding

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fresh water for drilling fluids, hydraulic stimulation and emergency response, and potentially reducing salt water disposal rates by up to 90% - if not completely eliminating the need for more wells altogether.

10:15 – 10:30 Break

10:30 “[Enhanced Choke Valve Control with Integrated Automation Technologies](#)”: Ryan Klemetson, Tolomatic Inc

With the rapid adoption of new technologies and new processes for drilling wells in a historically tight economic climate, the industry can no longer simply do "what we've always been doing". In the case of choke valve control for conventional or advanced drilling processes such as MPD, new levels of precision, speed, control, and processing power are required in order to reach semi-automated or fully automated drilling systems.

Tolomatic's ServoChoke® SVC actuator utilizes many of the automation industry's proven technologies that are utilized daily on a global scale (brushless servo motors, absolute multi-turn encoders, planetary roller screws, and servo class gearboxes). These integrated technologies are providing new levels of accuracy and reliable performance in choke valve control. These components are an integral part of what it takes to make a fully automated system that is robust and reliable for mission critical applications. With up to 10x gains in repeatability, 2x gains in speed, along with global certifications, zero maintenance, and a rugged exterior, this innovative new breed of oilfield automation equipment is helping to foster the implementation and adoption of automated drilling systems in the future.

11:00 “[Critical Real Time Data Is Now Within Reach for All Land Drilling Operations](#)”: Kevin Lacy, Proactive RT Solutions

Real time data systems currently exist but uptake has been limited for a multitude of reasons particularly the cost and difficulty in utilizing a single system across multiple suppliers. Many potential users are also deterred by the perceived low value provided by remote monitoring due to lag times in confirming a drilling problem and communicating with the rig site. Our collective experience confirms the value of applying real time data to critical decisions that can ultimately impact reliability, efficiency, and safety of drilling operations. In launching Proactive RT Solutions our approach has been to design a new system focused on eliminating the inherent difficulties of present systems to realize the potential value of utilizing real time data in a proactive collaborative manner. The Real Time Advisory System (RTAS) is designed using the latest IT technologies to preclude the need for a purpose built real time center and instead can be accessed at any location and on any web enabled device. The system eliminates the existing problem of “false alarms” or lack of decision time by utilizing a set of algorithms that mimic the experience of seasoned drilling foreman and drillers. By simultaneously evaluating many drilling parameters users can be forewarned of impending down hole problems with lead times of one to ten hours in most cases. This lead time allows for a thorough discussion and quality response to an impending issue. RTAS is a viable choice for land operations.

11:30 Adjournment