

Unconventionals Efficiency and Reliability Key for Success

Jorge Rivera
Argentina

Mayo 2018

Unconventional Development in Perspective



Settling the Ground for Development

Infraestructure

- While executing first pilot projects in Vaca Muerta, we understood operation had to be addressed differently
 - Barite Supply
 - Proppant Supply
 - Material Handling
 - Equipment Rotation
 - Facilites
 - HSE

Logistics

- Bulk Transport for Materials & Chemicals
- Proppant Transport
 - 74% YoY 2016 vs 2017
 - 31% at Q1 18 of total 2017
- Railroad as opposed to Trucks



Mineral Grinding Plant at Bahia Blanca Harbor



First HT-2000 pump trailer assembled entirely in Argentina





**Safety is part of our culture at Halliburton.
It is not only a priority, but a core value.**

Dave Lesar

Chairman of the Board

Moving Sand...



Local Workforce

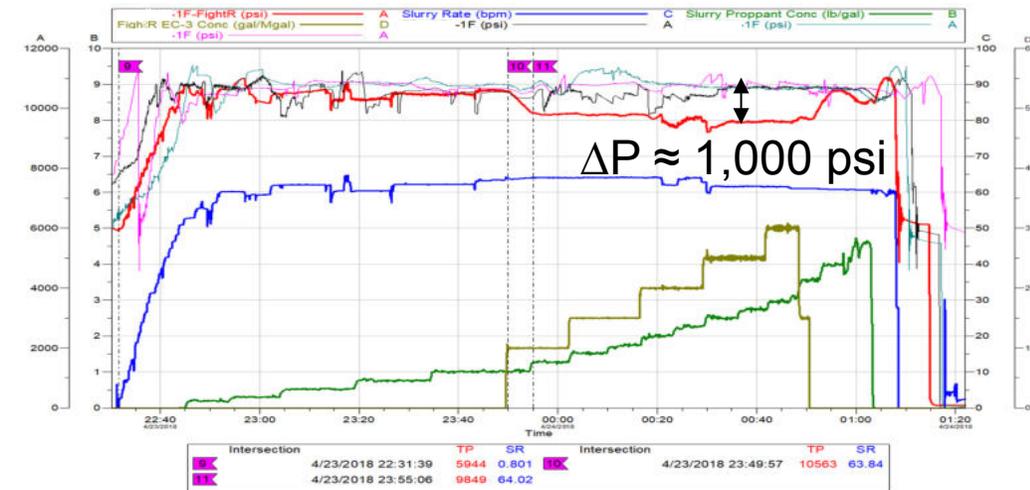


- 25% increment during 2018
- Supporting Diversity and Inclusion
- Building Competencies for employees is critical to maintain HSE and SQ
- Area of opportunity to foster performance base culture, required to achieve efficiencies to ultimate decrease total well cost per BOE



Technology applied for Efficiency

- Driver to gain efficiency and improve production results
 - High Performance Mud Motors
 - Custom Drilling Fluids and MPD
 - Fit to purpose in house Drill Bits design
 - Custom Surfactant Chemistry to improve Oil Recovery
 - New Generation of Friction Reducers
 - » High TDS waters
 - » Proppant transport capacity
 - » Decreased Average Treating Pressures
 - Shortened Total Pumping time due improved chemistry
 - Equipment Reliability
 - » Advanced, fit-for-purpose unconventional frac pump equipped with improved fluid end technology
 - » IntelliScan™ Equipment Monitoring System
 - » ExpressKinect™ Manifold



INSITE for Stimulation v6.0.0
24-Apr-18 14:48



IntelliScan™ Equipment Monitoring System Interface

Legend		19693 Q10 XHD				197 Q1- XHD			
Good	Discharge	Green	Yellow	Green	Green	Discharge	Green	Green	Green
Warning	Suction	Green	Green	Yellow	Green	Suction	Green	Green	Green
Caution		29054 Q10 XHD				8481 Q10 XHD			
Failure	Discharge	Orange	Green	Green	Green	Discharge	Red	Green	Green
Fault	Suction	Green	Green	Green	Green	Suction	Green	Green	Green

HALLIBURTON

In Summary

- Cost reduction will be driven by efficiency
- Collaboration is becoming mandatory for success
- Thinking out of box will provide alternatives to specific challenges present at the basin
- Building competencies is critical to support a safe working environment



THANK YOU