

# 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







**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



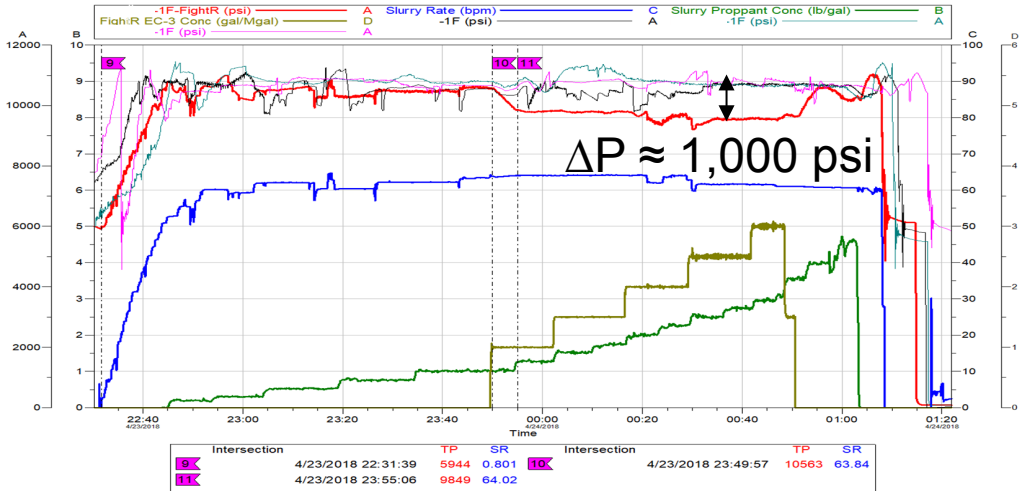
- 25% increment during 2018
- Supporting Diversity and Inclusion
- Building Competencies for employees is critical to maintain HSE and SQ
- Area of opportunity to foster performance base culture, required to achieve efficiencies to ultimate decrease total well cost per BOE





# 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



Intelliscan™ Equipment Monitoring System Interface												
Legend		19693 Q10 XHD						197 Q1- XHD				
<div></div>	Good	Discharge	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Discharge	<div></div>	<div></div>	<div></div>	<div></div>
<div></div>	Warning	Suction	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Suction	<div></div>	<div></div>	<div></div>	<div></div>
<div></div>	Caution	29054 Q10 XHD						8481 Q10 XHD				
<div></div>	Failure	Discharge	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Discharge	<div></div>	<div></div>	<div></div>	<div></div>
<div></div>	Fault	Suction	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	Suction	<div></div>	<div></div>	<div></div>	<div></div>
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**