BP Alaska Wells

2016 AADE Operators Forum

1. Safety
2. 2015 Review
3. Refreshed expectations for DE's?

gwo global wells organization

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2015 Alaska Wells Safety

Global Wells Organization
Safety Plan

Our Safety Priorities

- ***Well Control*** – We will never lose control of hydrocarbons.
- ***Contractor Accountability*** – Contractors rigorously apply their safety management system
- ***BP Leadership*** – Commitment to this safety agenda

Well Control

Contractor Accountability

BP Leadership

Contractor self-verification and BP oversight will be applied to these focus areas:

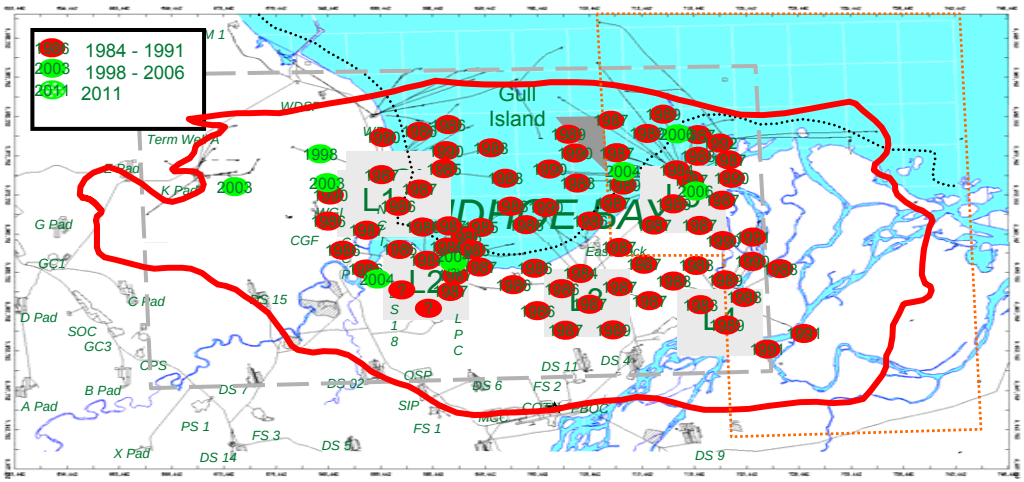
1. Dropped Objects
2. Shift Handover
3. Fluid Management
4. Procedural Discipline

2015 GPB Numbers

2015 (gross)	Plan	Actual
Production	280 mboed	281 mboed
Wells cash (gross)	368	349
Wells Capex (gross)	491	507
Number of wells	59	65
Rate adding wellwork jobs	450	480
NPT rigs	19%	17%
NPT non-rig	Track	23%

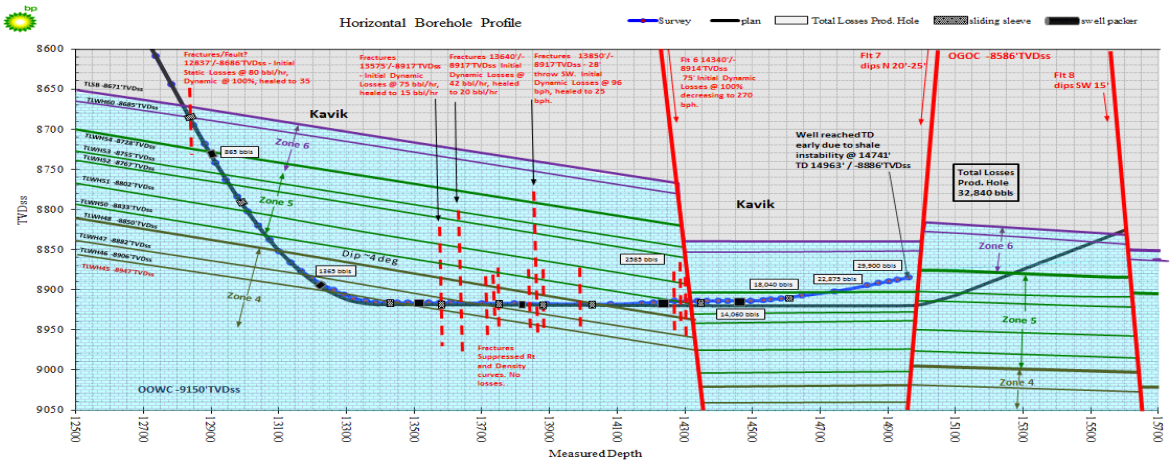
Fractured Carbonate History and 2015 Approach

- **Field discovered in 1968 and delineated in the 1980's**
  - Fractured carbonate reservoir
  - Did not meet reserves nor rate predictions
  - Challenging drilling with slow ROP and high loss rates in zone
- **Field developed in the 80's and 90's**
  - Small CTD campaign in 2006
  - Pilot injector in 2011



2015 Approach

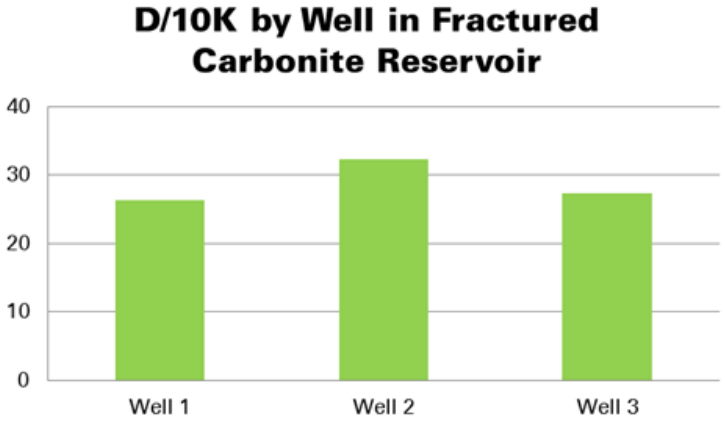
- Long, horizontal wells in reservoir
  - Targeting natural fractures
- Bit and BHA redesign to increase ROP from previous campaigns
  - Reduce drilling time and cost
- Post-well acid and frac stimulation treatments through sliding sleeves

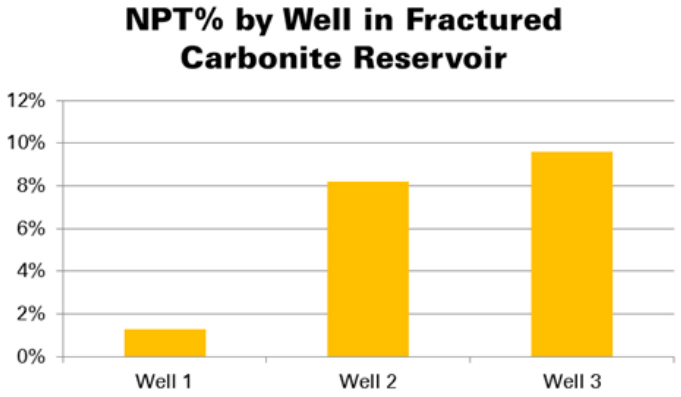


2015 Program Summary

Results

- ROP increased 23% over most recent well with increased bit life (fewer trips)
- Wells drilled and completed 7.6% ahead in days and 10% ahead of cost
- Combination frac and acid stimulation through frac sleeves
  - Acid treatments targeting high permeability zones
  - Prop frac treatments on poorer productivity zones
    - ~35k lbs proppant placed in each stage
- 2015 3-well program outperforming forecast





Future

- Sidetrack opportunities to eliminate surface hole and reduce well tie-in costs
- Redesigned stimulation program to reduce cost and downtime associated with screenouts and acid stim flexibility
- Options to optimize well design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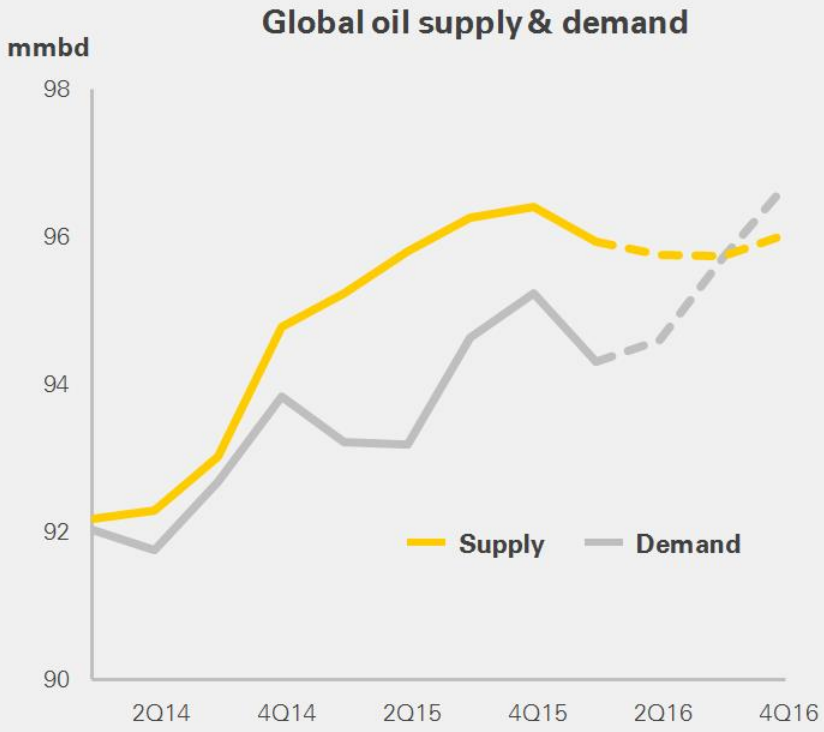
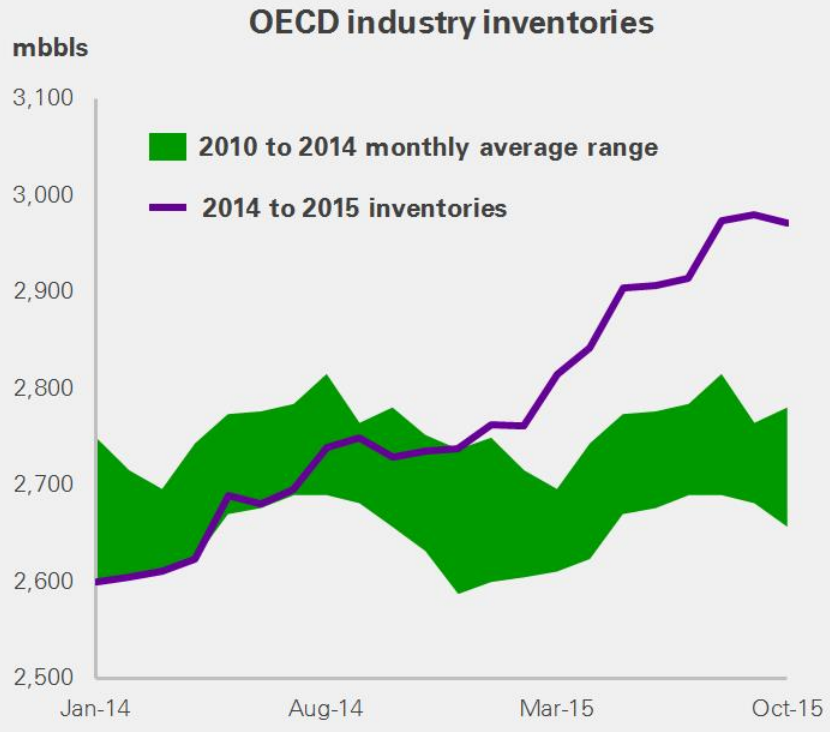
Oil price environment

Lower for longer, but not lower forever





Source: Wood Mackenzie and International Energy Agency Oil Market Report December 2015. Second half of the IEA data from the Monthly Oil Data Service © OECD/IEA 2016, IEA Publishing; modified by BP plc

2016 Refreshed Drilling Engineer Expectations

Engineering solutions using existing proven technology

- Utilizing coil frac sleeves in lieu of ball-drop
- Bi-center bits

Optimize design to reduce cost per well

- Design contingency to mitigate the risk while reducing the number of casing strings
- Ensure right quantity of products is being used during fracturing
- Reduce liner top packer failure rate (CTD)
- Right scope wells

Continuous Improvement

- Target improved wellwork efficiency per job
- Reduce POP time by utilizing post-rig perforating opportunities
- Cost controls and contractor performance management

Relentless focus on safety and reliability

Q&A?