Teledrill™

REACH FOR SMARTER PERFORMANCE

Newton System™

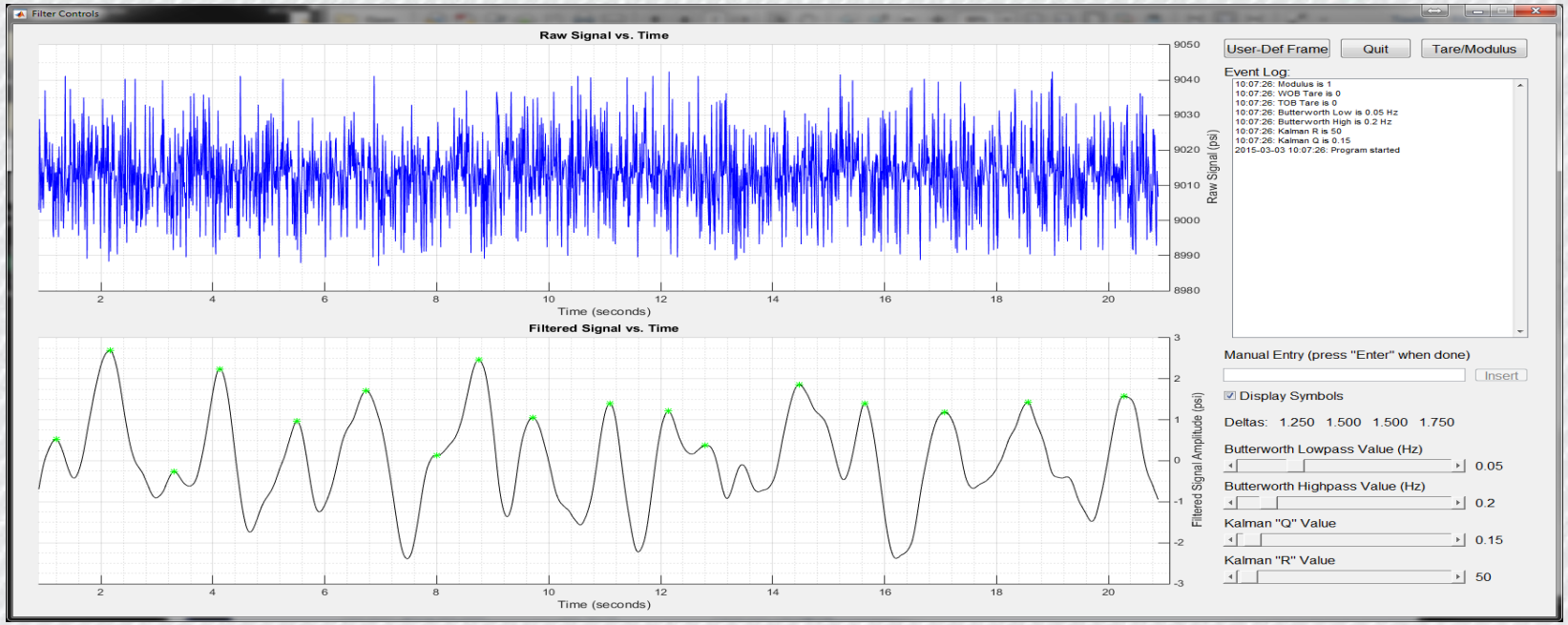
Technology for Coiled Tubing Operations

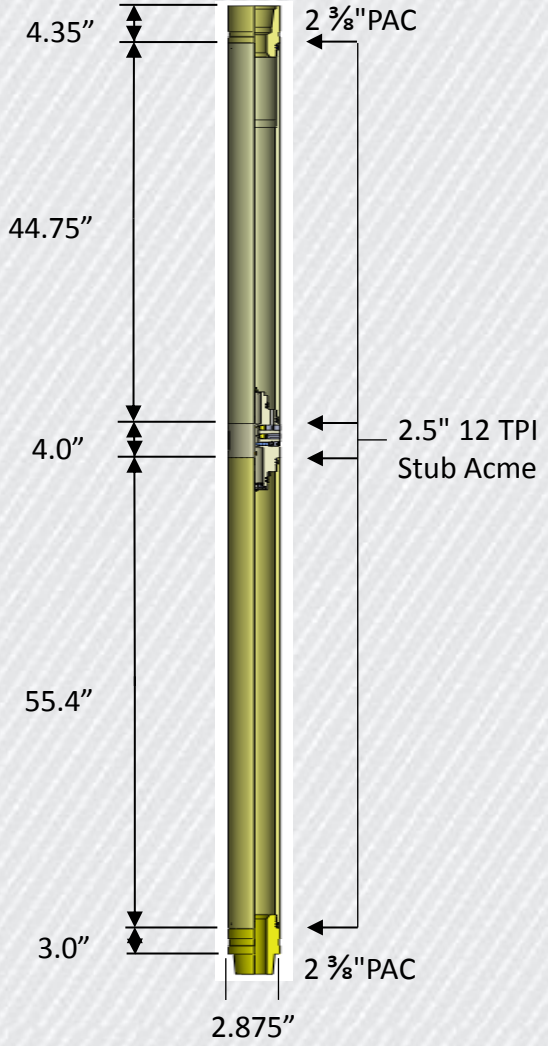
October 2016

Teledrill Inc. 18303 W. Little York Rd. TX 77449 281.550.0434 Teledrill.com

Newton System™

Teledrill™
REACH FOR SMARTER PERFORMANCE





- **Provides extended reach capability by way of water hammer pulsing while at the same time utilizing those pulses for transmitting information to surface from downhole sensors**

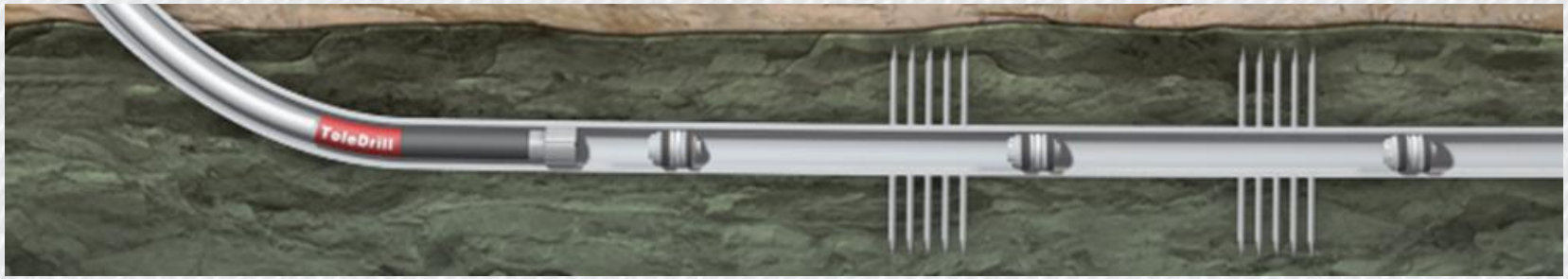
Teledrill Inc. 18303 W. Little York Rd. TX 77449 281.550.0434 Teledrill.com

Newton System™

Teledrill™
REACH FOR SMARTER PERFORMANCE

Downhole Measurements

- Compression
- Tension
- Annular Pressure
- Bore Pressure
- Inclination
- Temperature
- Vibration
- CCL – in development

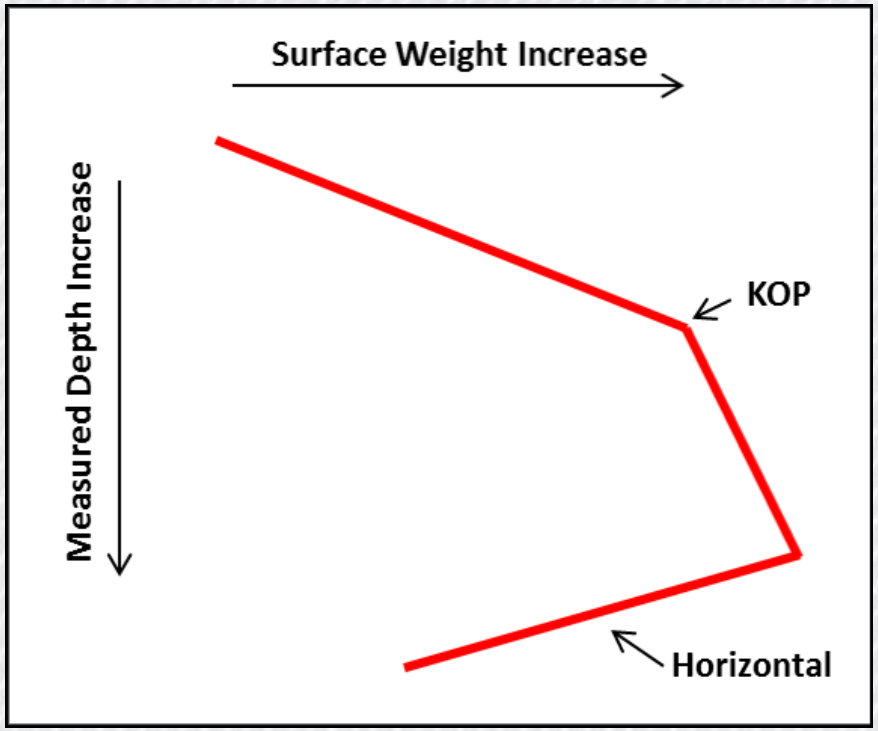


Teledrill Inc. 18303 W. Little York Rd. TX 77449 281.550.0434 Teledrill.com

Coiled Tubing Operations

Teledrill™
REACH FOR SMARTER PERFORMANCE

- **Reach**
  - Water hammer mud pulsing overcomes drag, transfers weight and advances the CT in the lateral section of the well
  - Surface controlled pulser
    - On/Off toggle via downlink

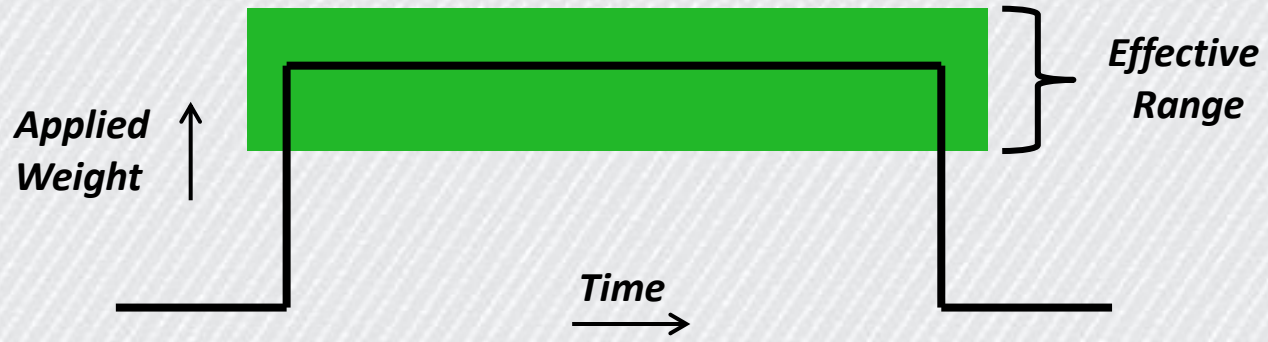


Reference: SPE 159574

Coiled Tubing Operations

Teledrill™
REACH FOR SMARTER PERFORMANCE

- **Manage Weight to Time Drill**
  - Too much weight hinders hole cleaning due to larger particle size
  - Too little weight increases milling time
  - Current practice of monitoring surface pressure is insufficient to manage weight applied to a plug



Coiled Tubing Operations

Teledrill™
REACH FOR SMARTER PERFORMANCE

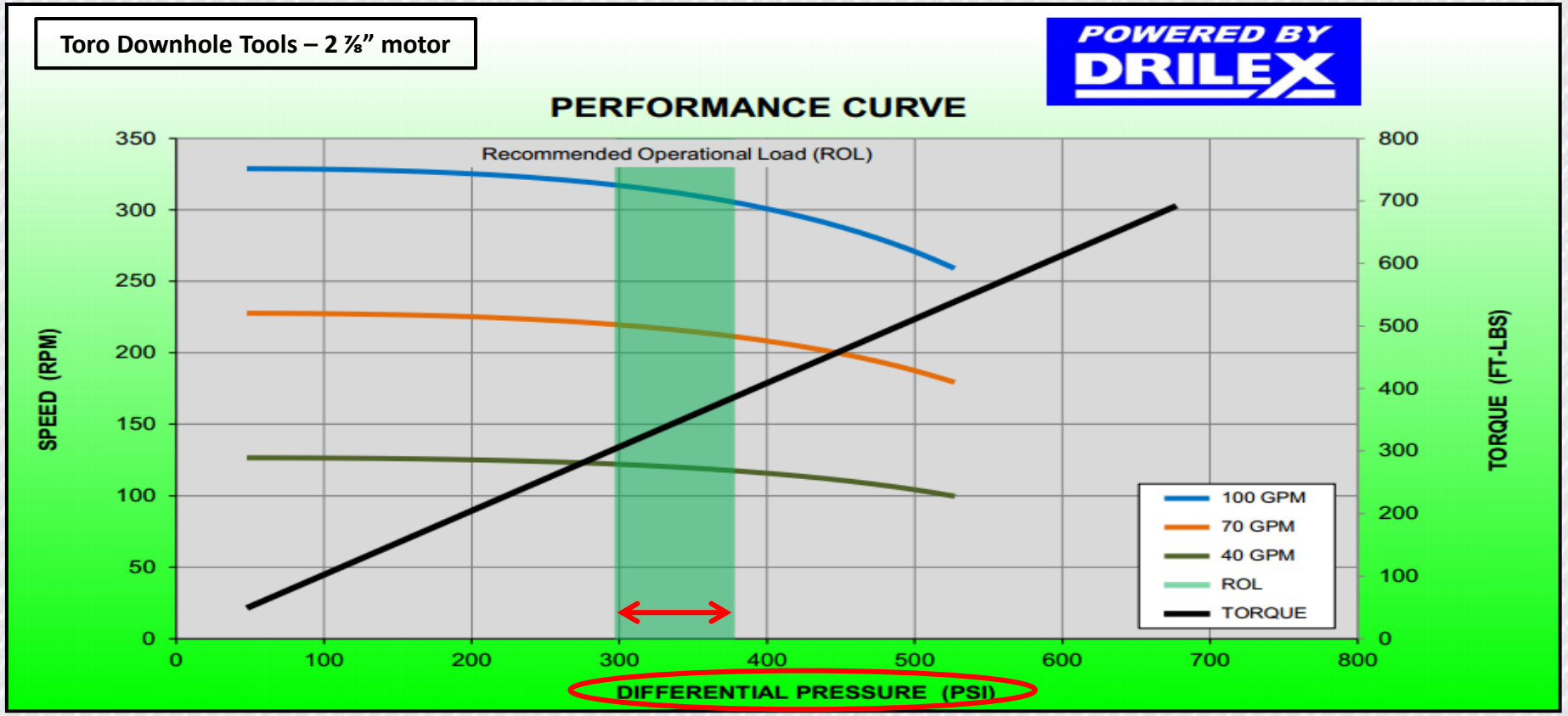
Time Drill - Plug debris particle size matters in hole cleaning

Teledrill Inc. 18303 W. Little York Rd. TX 77449 281.550.0434 Teledrill.com

Coiled Tubing Operations

Teledrill™
REACH FOR SMARTER PERFORMANCE

- **Drilling Motor Performance**
  - Validate motor performance with downhole measurements
  - Be informed before deciding to POOH



Eliminate Guesswork

Real time information about downhole conditions improves decisions

Coiled Tubing Operations

Teledrill™
REACH FOR SMARTER PERFORMANCE

- Coiled Tubing Drill Outs
  - Reach TD
    - Controlled Water Hammer Pulsing
  - Control weight applied to plugs
    - Time drill with downhole weight not surface pressure
  - Clean the hole
    - Particle size matters – time drill
  - Stay in the hole
    - Don’t trip to change BHA on conjecture

Coiled Tubing Operations

Teledrill™
REACH FOR SMARTER PERFORMANCE

Use Data to Support Best Practices

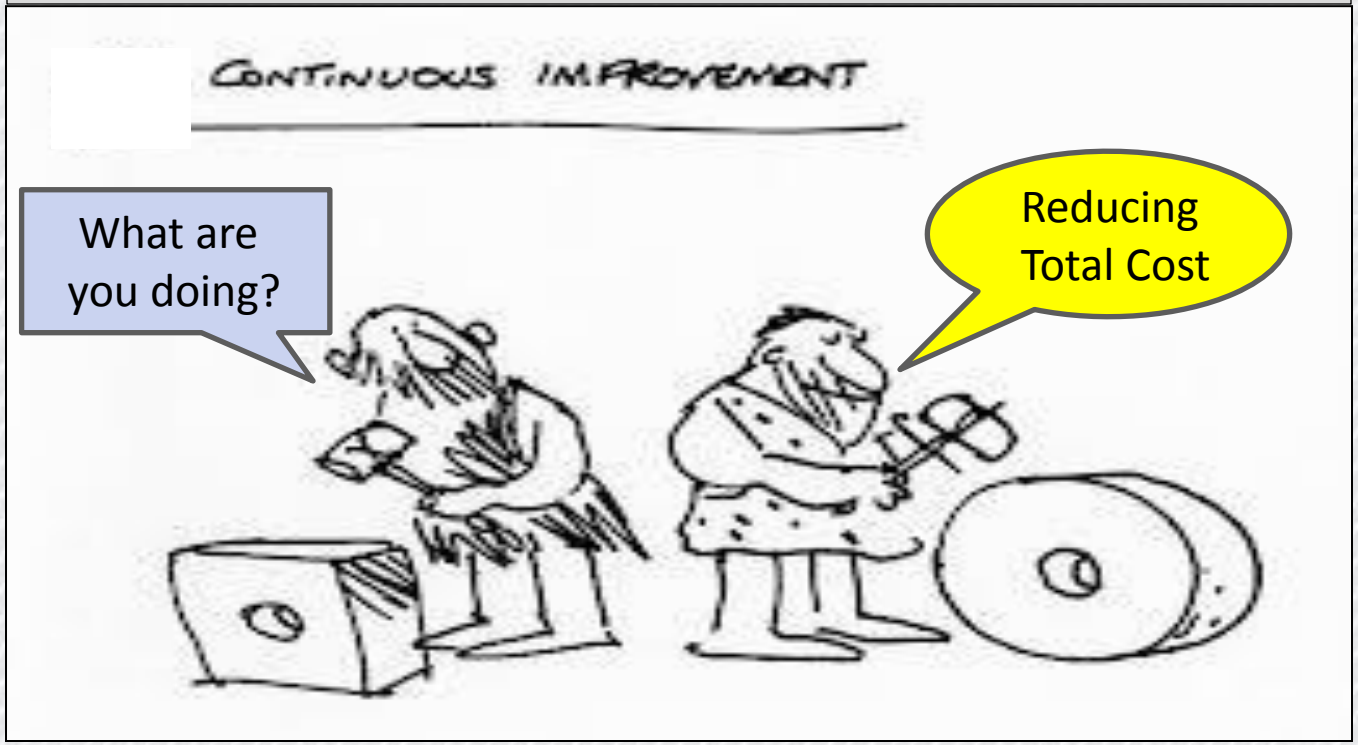
Supplier Selection

- Plug / Mill / Motor
- CT provider

KPI's

- Days / job
- Time / plug
- # of short trips

Plan • Deploy • Review • Improve



Operations Summary

Teledrill™
REACH FOR SMARTER PERFORMANCE

- First run was March 12, 2015
- Total of 15 runs
  - West Texas, South Texas, Pennsylvania, North Dakota, New Mexico
  - Over 600 hours of cumulative downhole time
- Deepest well: 21148 feet
- Coil-frac, cleanout, and plug-milling operations
- Durability:
  - Longest In-Hole Time: 213 Hours
  - Acid: 1262 barrels (53,000 gallons)
  - Sand: 2500 lbm, 100 mesh, at 4.0 BPM