



HOW DO I PLACE AND SPACE MY WELLS?

*A Tech Team Solution
by Liberty Oilfield Services*

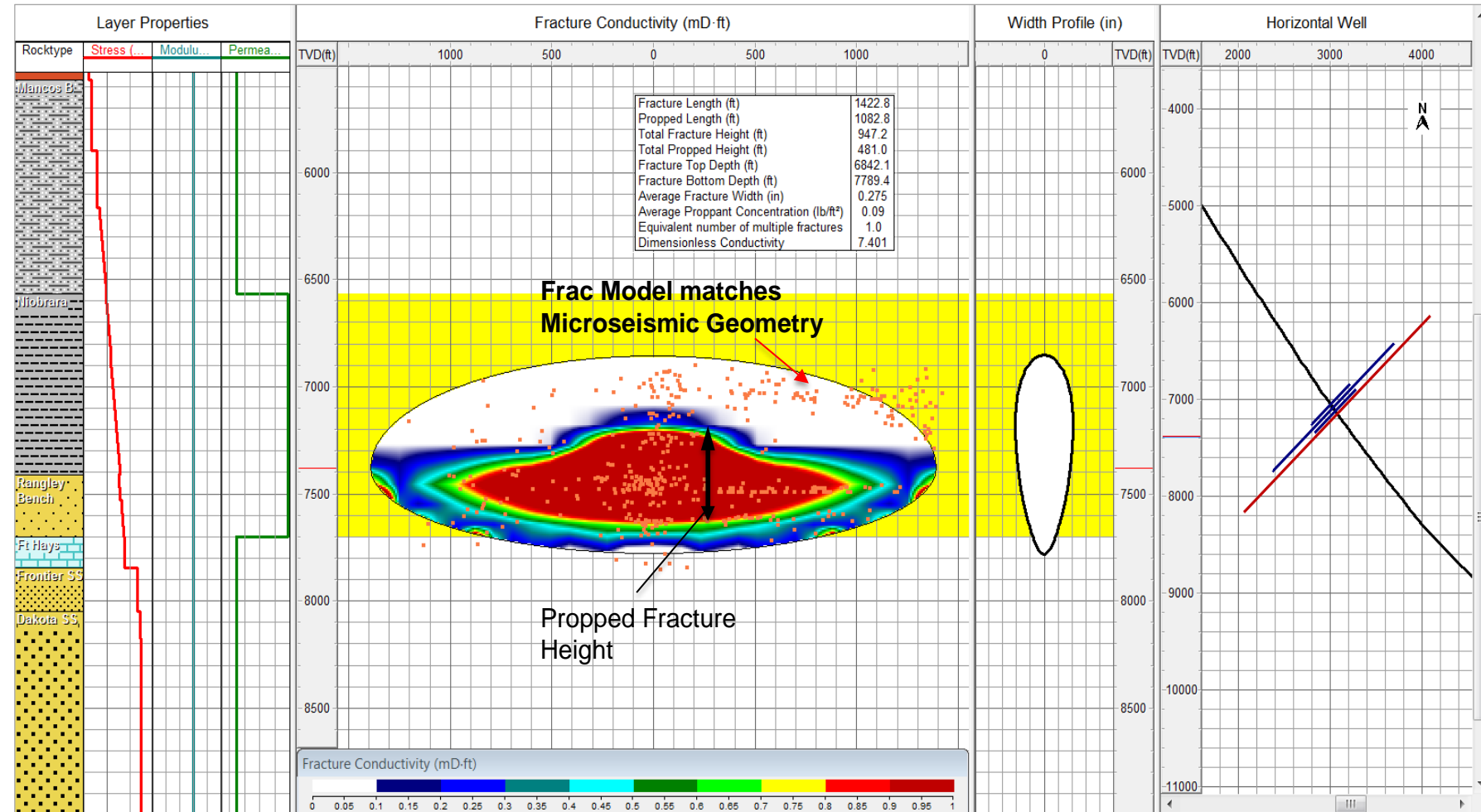


Integrated Frac and Reservoir Modeling

- Earth Model (Geomechanics and Reservoir)
- Frac Diagnostics (Microseismic, Tiltmeters, Tracers etc)
- Calibrated Frac Modeling
- Calibrated Reservoir Modeling (Prod. History Match)
- Sensitivities and Economics (Optimize Frac Design and Well Spacing/Placement)
- Piceance Basin Case Study in Mancos/Niobrara (SPE 184848)

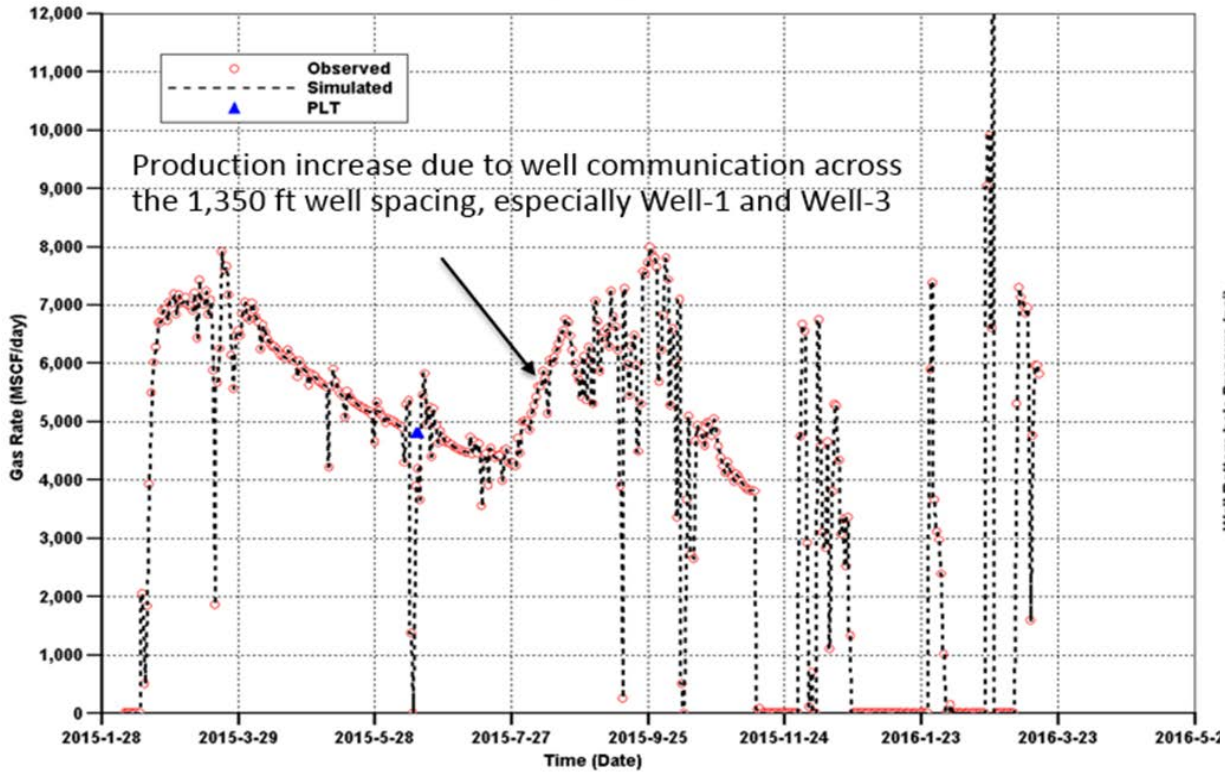
Calibrated Frac Modeling

- Earth Model
- DFIT data
- Model Calibration

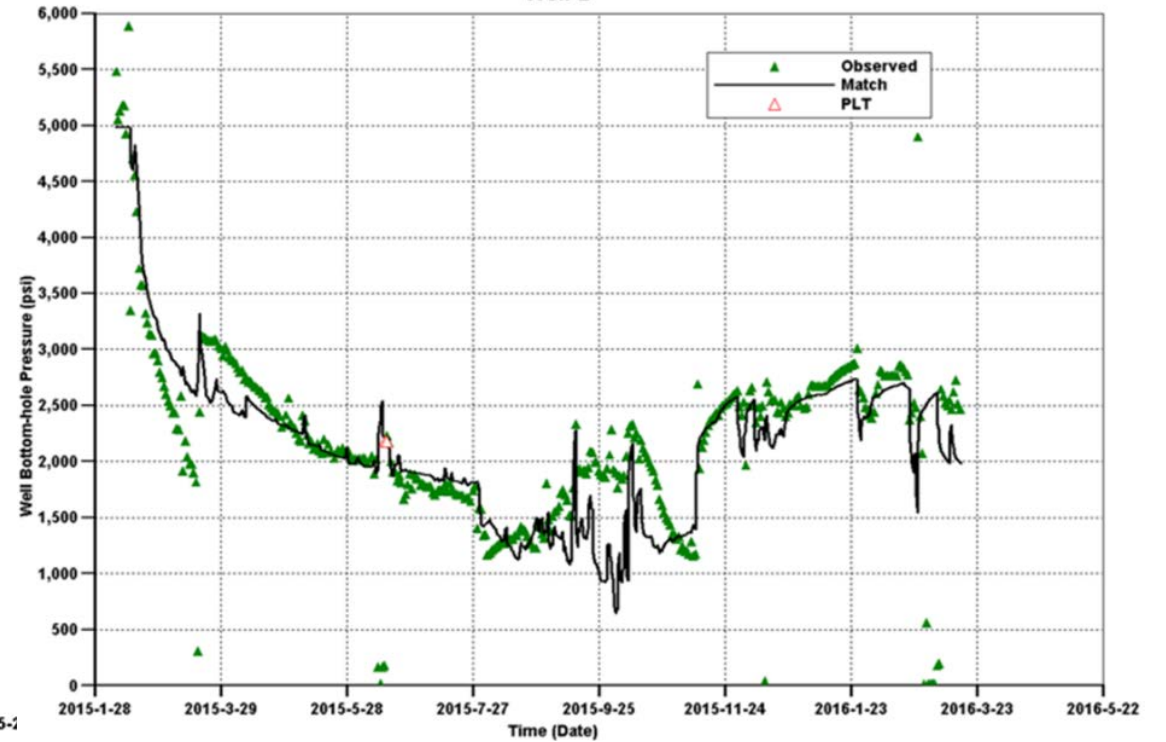


Calibrated Reservoir Modeling

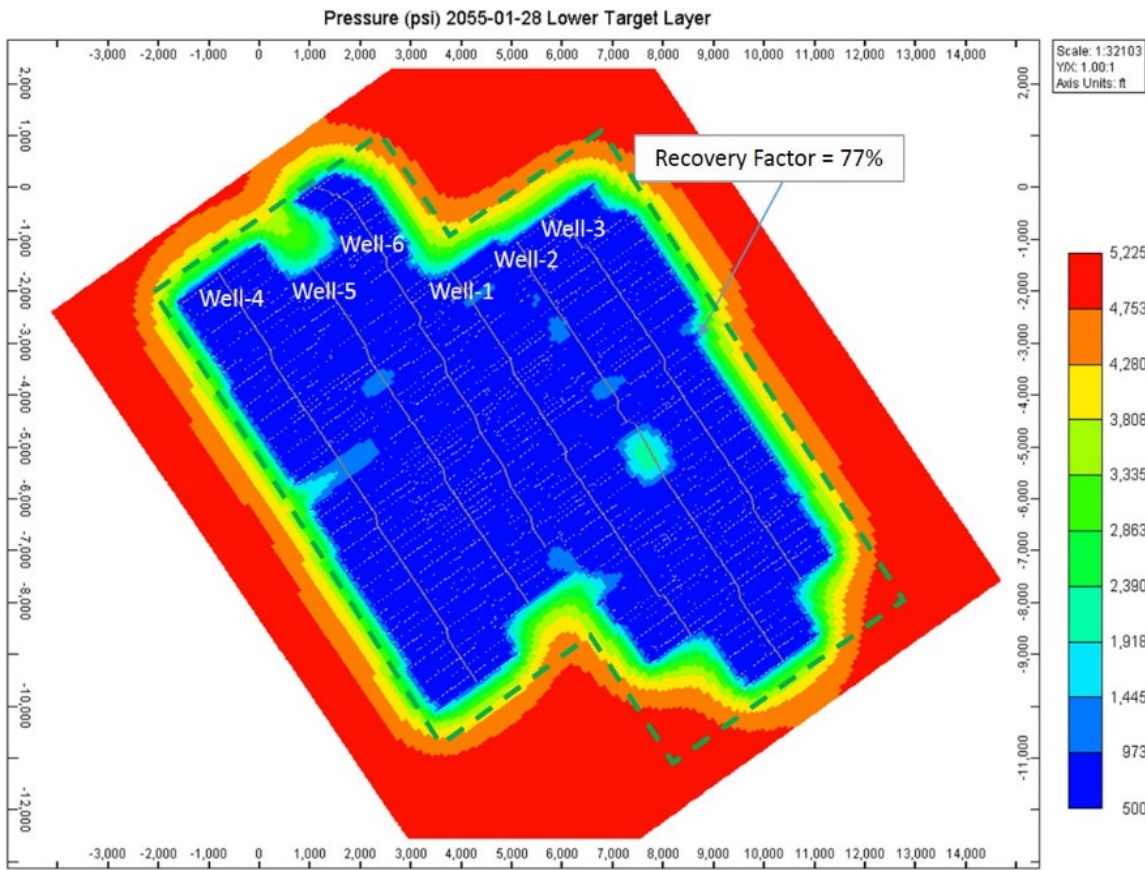
Well-2



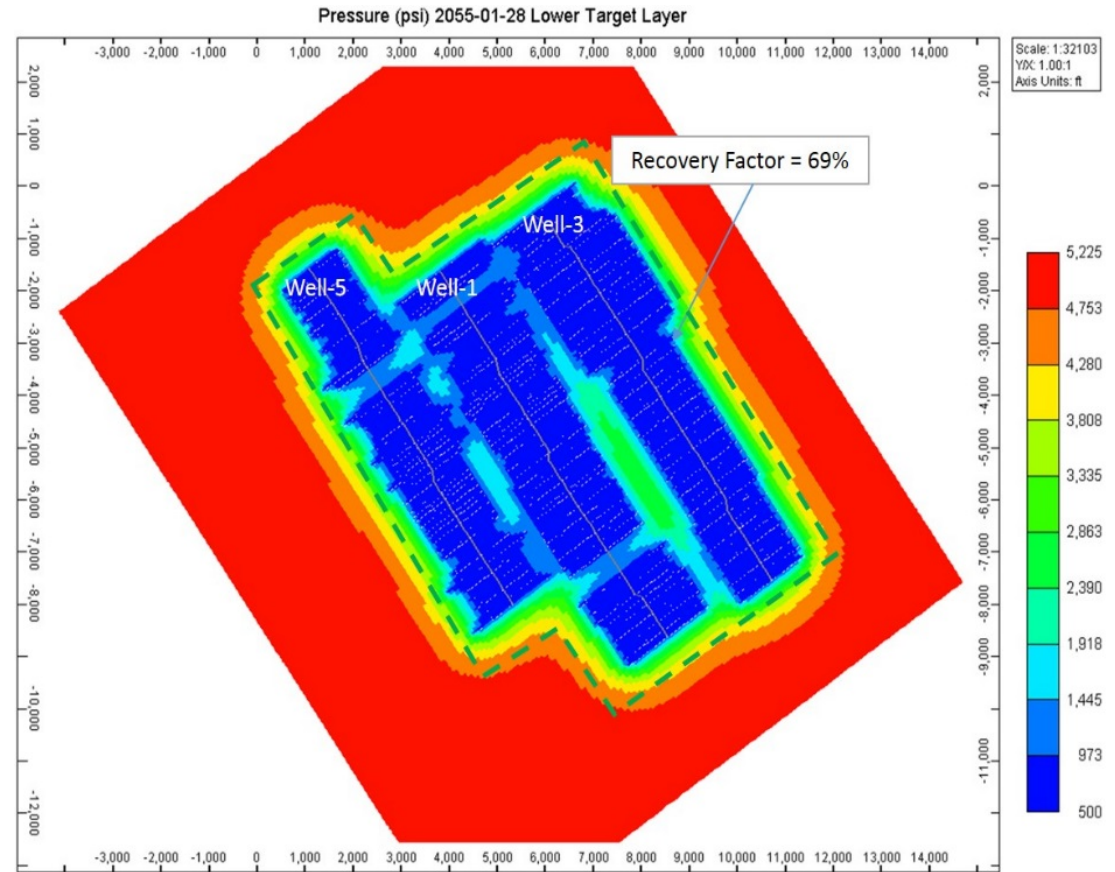
Well-2



Well Spacing Sensitivities



1,350 ft Well Spacing (35 Bcf with 6 Bcf/well)



2,700 ft Well Spacing (24 Bcf with 8 Bcf/well)

Sensitivities and Economics

