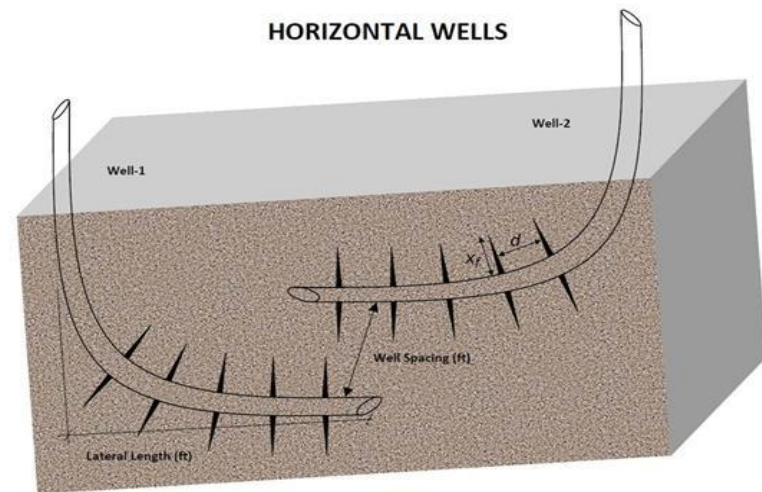
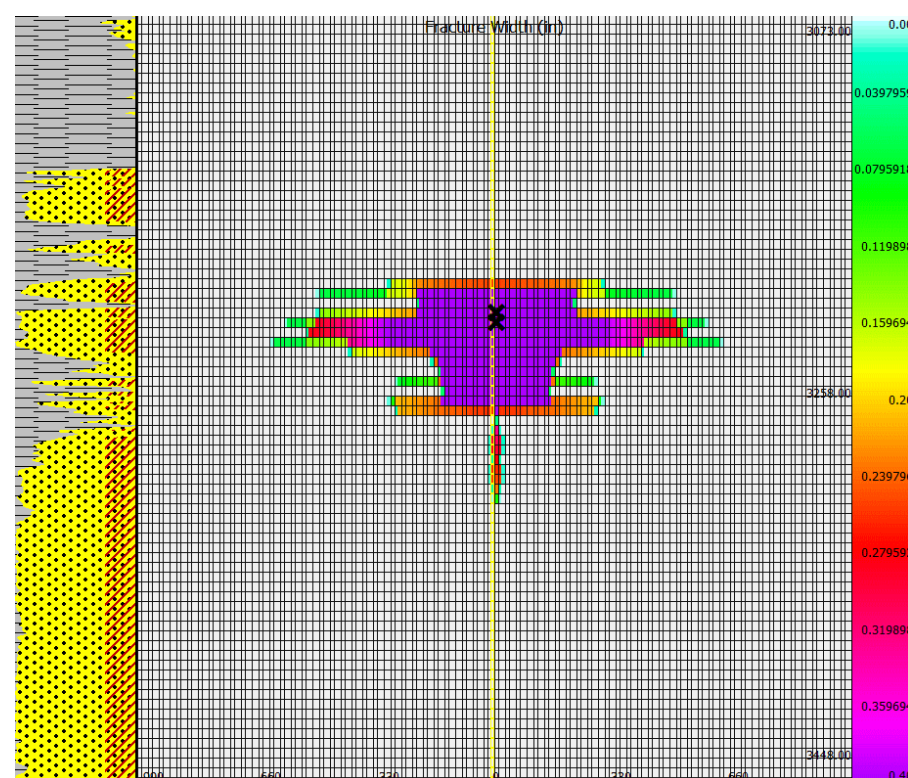
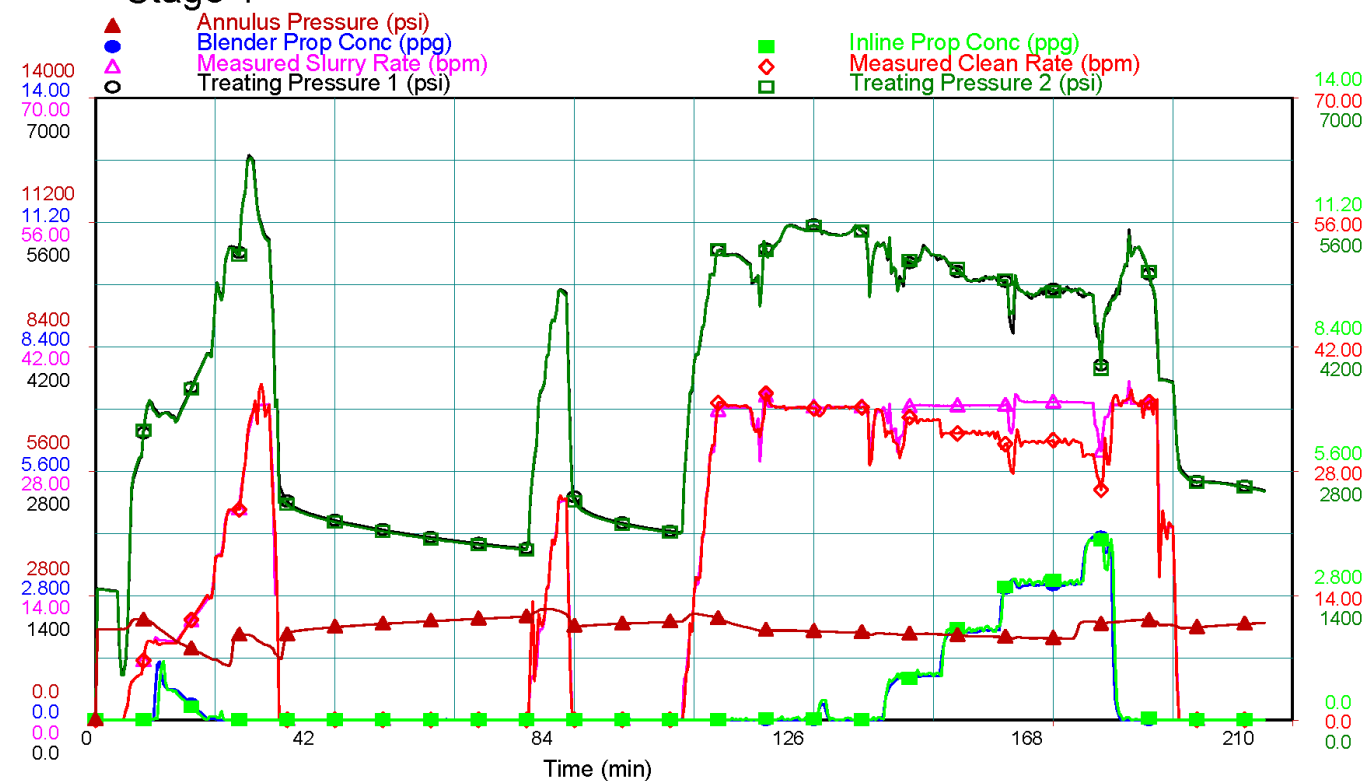


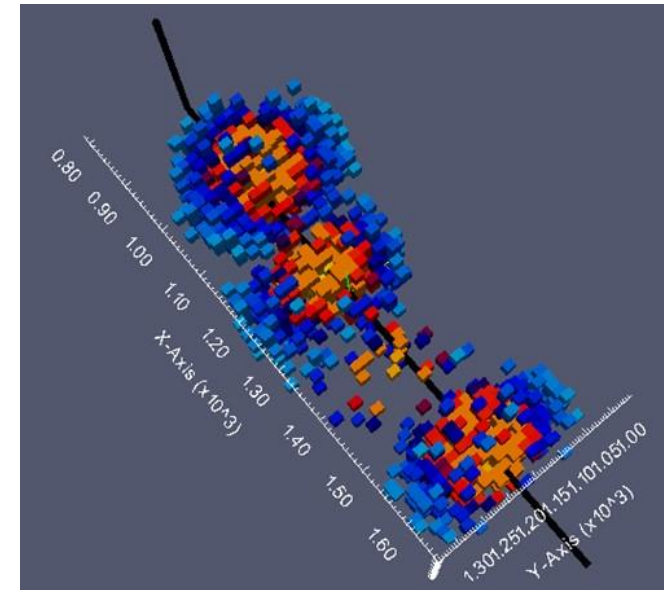
## Hydraulic Fracture Modeling



Treatment Data Stage 1



## Unconventional Reservoir Analysis

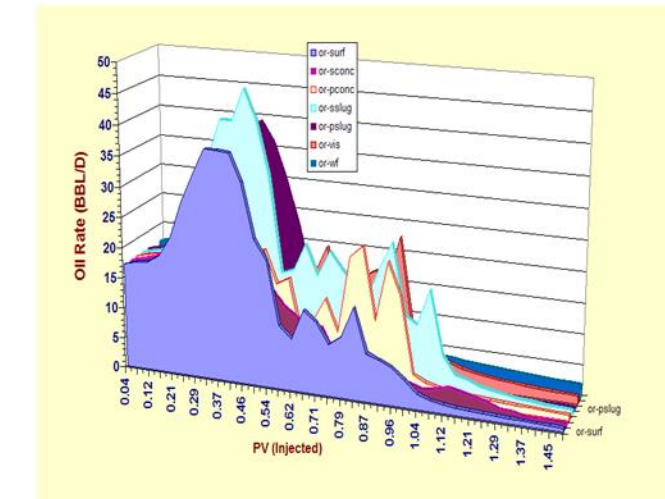


**Why:** You are interested in optimizing completions, horizontal well length, assess EUR and understand production performance.

**What:** This requires a multi-domain approach where hard and soft data gathered from different sources e.g. microseismic, tracer analysis, production logs etc. need to be analyzed and then assimilated to build a comprehensive model.

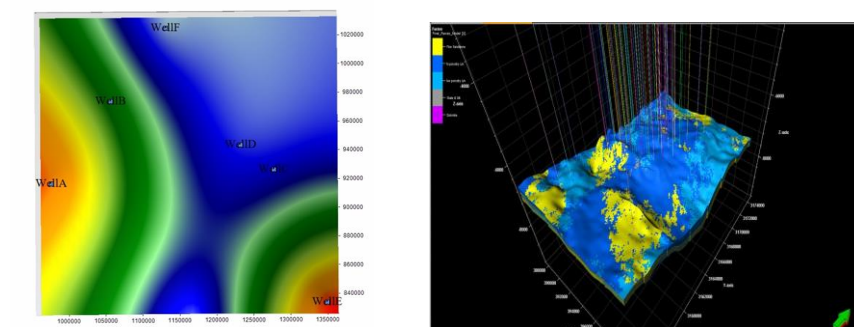
**How:** We analyze production behavior of unconventional reservoir with traditional classical approach of RTA and fracture modeling. Our approach includes production diagnostics to identify flow regimes and any irregular behaviors. This is followed by fracture attribute determinations from analyzing DFIT and other pressure/production tests. Combining the production, flowback, well architecture and completion data, a single/multiple well model is constructed. Upon history matching, the calibrated model is then queried to improve future designs and estimate EURs.

## Reserves Assessment and PV10 Modeling



**Why:** You need third-party reserves assessment services that can help you in several ways including providing guidance in buying and selling your assets and securing capital.

**What:** Engineering and financial decisions enable oil and gas property appraisals, fair market value determination and evaluating investment decisions using traditional decline curve techniques, sound engineering calculations to detailed single/multiple well modeling, as required.



**How:** Decline curves obtained from engineering techniques form the basis for detailed scenario and economic analysis. The scenarios bracket the risks in the project. The economic analysis estimates the pricing and cost to engage in the project. The assumptions are made based on prior knowledge, discussions with the operators and risk tolerance.

# Reservoir Modeling Workflow

## Laboratory

- ❖ Core
- ❖ PVT

## Dynamic Model

- ❖ Calibrate Model to Production and Pressure
- ❖ Forecast Scenarios
- ❖ Optimal Spacing
- ❖ Frac Design
- ❖ Well Architecture
- ❖ Economics

## Petrophysics

- ❖ DCS
- ❖ N/D
- ❖ GR/SGR
- ❖ Resistivity

## Hydraulic Fracture Model

- ❖ DFIT
- ❖ Honor Pump Schedule
- ❖ Match Net Pressure
- ❖ Fracture Geometry

## Static Model

- ❖ Structural and Stratigraphic Modeling

# ASSET INFORMATION

