



# **ADVANCED GOHFER TRAINING COURSE**

## **AGENDA (3 Day)**

**Multi-Well Fully 3D Geo-Mechanical Model & GPA (Production Analysis)**

**HALLIBURTON**



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# ADVANCED GOHFER TRAINING COURSE AGENDA (3 Day)

## Multi-Well Fully 3D Geo-Mechanical Model & GPA

**Objective:** This course is intended for **EXPERIENCED GOHFER USERS ONLY**. This course will discuss and demonstrate the GOHFER 3D Multi-Well Fully 3D Geo-Mechanical Model and GOHFER Production Analysis (GPA). This course assumes the students have received previous GOHFER training and are proficient with the current customer version. Basic/beginner topics and other modules will not be covered.

### Day 1: - Introductions

#### Discussion - Unconventional Reservoirs and Horizontal Well Stimulation

- Selection of stimulation designs
- Transverse or Longitudinal fracs
- Achieving diversion and placement
- Treating pressures and breakdown efficiency

#### GOHFER 3D Software – Multi-Well Fully 3D GeoModel

##### 3D Example 1 – Multi-Well Model w/ Reference Logs only (No Geologic Model)

- Site & Well Location Entry
- Log Processing & Integration
- Grid Setup & Map View

##### 3D Example 2 – Add 2D Surface Map to Previous Example

- Grid Setup & Map View

##### 3D Example 3 – Add 3D Geologic Model to Previous Example

- Create Core to Replace Reference LAS
- LAS Mapping from Core (Full 3D Distribution vs. Reference LAS (Layer Cake))
- Import Geologic Model / Requirements
- Offset Depletion / Well Bashing
- Zipper frac simulations

### Day 2: - Continue GOHFER 3D Software – Multi-Well Fully 3D GeoModel

#### Fully 3D Geo-Model Example

- Individual Multi-Well Fully 3D GeoModel Class Exercise

#### Discussion - Predicting Final Fracture Conductivity, Cleanup and Production

- Traditional Conductivity Estimates
- Polymer Concentration during Leakoff and Closure
- Degradation and Half Life of Various Breakers
- Proppant Crushing by Uneven Loading
- Non-Darcy Flow Mechanisms
- Relative permeability and Multiphase Flow
- Combined Effects of Multi-phase and Non-Darcy Flow
- Damage and Cleanup processes
- Case History: Created versus effective frac length

### Day 3: - GOHFER Software – (GPA) GOHFER Production Analysis

- Decline Analysis
- Type Curve Analysis

#### Wrap Up - Summary and Conclusions

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**Optional Topics:**

**Discussion - Proppant Transport & Screenout Behavior**

- Factors Affecting Proppant Transport
- Proppant Movement by Bulk Flow or “Convection”
- Proppant Bridging and Screenouts
- Proppant Holdup and Inefficient Transport
- Effects of Overflushing Frac Jobs

**Discussion - Fracturing Fluid Rheology and Leakoff**

- Fracturing Fluid Rheology
- Effect of Sand Addition on Frac Fluid Rheology
- Leakoff Modeling