



HYDRAULIC FRACTURING AND HYDRAULIC FRACTURING QUALITY CONTROL

Workshop Description

Hydraulic fracturing has made a significant contribution to the petroleum industry as the primary means of increasing a well's production. Since fracturing was introduced in 1949, more than one million fracture treatments have been performed and currently about 40 percent of all drilled wells are fractured. Fracture stimulation not only increases production rate, but it also has been credited for additional oil and gas reserves, which would have been otherwise uneconomical to develop. The purpose of these practical workshops is two-fold: (1) to present the principles of the fracturing process, which will permit the attendees to more effectively interact with the service company representatives for their current fracturing applications, and (2) to provide a basis for the attendees to improve current fracturing applications.

These practical workshops are based on the courses that Dr. J. M. (Jay) Avasthi and Mr. Bob Hall, have taught, around the world, during their long oil & gas industry careers and their experiences with the fracturing technology.

Duration and Scope

These two high-level workshops, 'Hydraulic Fracturing' of five days duration and 'Hydraulic Fracturing Quality Control' of two days duration, have been designed to educate the workshop attendees about the state-of-the-art of fracturing technology, and how to get better fracs at the lowest cost from the service companies.

WORKSHOPS CONTENT

- Theory and Definition of Fracturing Terms
- Stress fields and Rock Mechanics
- Pressure analysis
- Near Well Bore Effects
- Tortuosity
- Trends during Pumping
- Mini-frac Analysis
- Models-frac Design
- Perforating
- Slick Water vs. Cross-linked Fluids
- Multiple Zones
- Vertical, Slant Hole, and Horizontal Well Bores
- On-site supervision and Execution
- Pressure Interpretation
- Step Rate-Up and Down
- Calculation of Closure Pressure
- ISIP and Frac Gradient
- Materials, Equipment
- Frac Fluids, Proppants, Additives
- Post Treatment Clean-Up
- Chokes
- Forced Closure
- Production
- Design Frac Jobs

The 5-day 'Hydraulic Fracturing' workshop involves a discussion of the state-of-the-art of fracturing technology. It starts with a discussion of the basic concepts of hydraulic fracturing, and then is devoted to fracturing design, and discussion and evaluation of various issues involved in designing a frac-job. There are several class problems for the workshop attendees to work on to explain the process of designing a frac-job. There is an elaborate discussion on the chemicals and additives to be used in fracturing, and post treatment clean up.

The 2-day 'Hydraulic Fracturing Quality Control' workshop discusses on-site quality control and testing, and related topics, to get better fracs at the lowest cost from the service companies. A combination of technical discussions plus class room exercises will prepare the workshop attendees to identify opportunities based on previous field experiences, lessons learned, and best practices that have been gathered purposely for these workshops.

Who Should Attend

These workshops are custom-designed for managers, senior engineers, and engineers, familiar with well stimulation and production engineering, and involved in the design and evaluation of hydraulic fracturing treatments, and interested in mastering fracturing technology, and hydraulic fracturing quality control to get better fracs at the lowest cost from the service companies.

Workshop Requirements

Each workshop attendee should bring their own notebook computer to work on the class problems. Class rooms should be equipped with power strips for students to plug in their notebook computers and a projector for instructors to project their PowerPoint slides.

Workshop Manual

Each workshop attendee will be provided a workbook (in English) containing copies of the instructors' presentation slides and solutions to the class problem.

Workshop Instructors

This custom designed workshop will be conducted by our high-level and seasoned consultants, with extensive knowledge and experience in the subject matter as well as in conducting training programs around the world.

Language of Instructions

These workshops will be conducted in the English language. However, if desired by the client, one of our bi-lingual consultants can be present throughout the workshops for the benefit of those attendees who are not fluent in the English language. These workshops can be customized further to meet the needs of the client's professionals and managers.