

COURSE SUMMARY

This course can be tailored to your organization's needs. Different disciplines need an understanding of oil & gas well fracturing, and people don't all need the same information. Some people need to know about the impacts that can occur to groundwater: others don't. People working in oil and gas accounting departments have specialized needs, but people outside the industry find such information esoteric!

Depending on your needs, Platte River Group can put together a course, or recommend a different instructor who can help you.

Platte River Group's courses typically feature information on topics such as:

- How fracturing works (more than the basic information described in the newspaper!), the terminology used, and equipment used.
- The procedures used, types of frac fluids, and types of proppants (sand).
- Preparation for successful fracturing, such as zonal isolation, drilling, casing (pipe), packers, and cementing. Cementing repairs are a topic that can be covered.
- PRG will cover the basics of perforating or sliding sleeves. For a *detailed* discussion of these topics, we recommend W. Aaron Burton's classes (waaronburton@uogtraining.com).
- An honest discussion of liability due to environmental damage or issues surrounding interactions with other land uses can be covered. Urban fracking is a potential topic.
- Water sourcing and disposal, or recycling, along with midstream pipelining and operations, are potential topics.
- How to decipher frac reports, either from vendors, regulators, or from FracFocus, is a topic of interest to technicians and researchers.
- How can we make wells more productive?

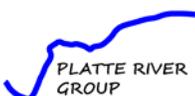
LEARNING GOALS

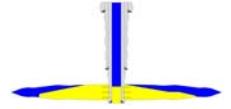
Goals for the participants include:

- Describing how fracking works
- Being able to discuss fracturing with co-workers or other stakeholders, such as regulators
- Being able to realistically assess water sources or disposal/recycling options
- Knowing where to start grappling with regulations
- Locating information such as case studies
- Assessing properties that your company might buy, or companies whose actions could affect you in some way
- Being able to analyze fracking with out "rose-colored glasses," but without the reactionary paranoia that is prevalent in some factions

WHO IS THE CLASS FOR?

- Groundwater remediation professionals
- Water providers
- Workers at NGO's
- City & county engineers & land use planners





- Regulatory agency employees
- Insurance personnel
- Environmental, health, and safety personnel
- Operations and production personnel
- Suppliers

TYPICAL AGENDA

The class can be customized for your needs. Topics typically included are:

How fracturing works

- Steps in the process (pad, sand, flush)
- Types of fluids
- Proppants
- Flowback
- Pressure, Rate

Water Issues

- How much water is needed?
- Where can you get water? What about water rights?
- How much water comes back out of the wells?
- Water pollution. Can water be recycled?

Regulations

- Data examples from regulator websites
- How are wastes regulated?
- Data requirements
- Federal, state, local regulations
- FracFocus

Case Studies

Deciphering Frac Reports

COST

This class is scheduled periodically through www.EUCI.com, with a typical per-person cost of \$1500, and can also be arranged as an in-house course. Typically, costs for in-house courses are lower. To get a quote for an in-house course, contact Lee Denke at 661-547-2770 or lee.denke@gmail.com, or through EUCI, contact Erin Burba at 303-770-8800 or eburba@euci.com.

INSTRUCTOR

Lee Denke started off by getting a bachelor's in electrical engineering from the University of Wyoming, then took a job cementing, acidizing and fracturing wells with Schlumberger in Worland, Wyoming, and has worked in California, North Dakota, and the Rocky Mountain area. Additional jobs included both subsurface and facilities engineering, as well as project management for Texaco, Aera and Berry. Lee understands the contract side of the business as well, having worked for the consulting firms TJ Cross, Ken Small, and Processes Unlimited. Lee currently works as a consultant in downhole and facilities operations and is licensed as a mechanical engineer in Wyoming and Colorado.

