

Hydraulic Fracturing Disclosure

Frequently asked questions

What is the Schlumberger position on hydraulic fracturing?

Industry practice has changed significantly over the past 10 years. Advancements in technology allow hydraulic fracturing operations to be conducted far more efficiently. This translates to smaller footprints, less waste, cleaner and safer operations, and greater compatibility with the environment.

Reducing the amount of freshwater needed on site for hydraulic fracturing activities is essential. Schlumberger recycles or reuses water whenever feasible. The development of more robust fracturing fluids has enabled, in some cases, the use of brackish water or seawater without degradation in performance.

Schlumberger develops and uses technologies that help reduce the amounts of materials needed for hydraulic fracturing, including equipment needed for delivering resources to a wellsite. Technologies include the HiWAY* flow-channel fracturing technique for less proppant and fluid usage, Mangrove* engineered stimulation design in the Petrel* E&P software platform for effective job planning, and SPARK* technology delivery platform for efficient pumping equipment usage.

With the HiWAY technique, the amount of water can be reduced by up to 60% and the amount of proppant by up to 40% over other hydraulic fracturing techniques. As a result, trucking and CO² emissions are also greatly reduced.

The HiWAY technique has already been deployed in over 20,000 operations for more than 80 customers in 19 countries.

For more information see:

http://www.slb.com/services/completions/stimulation/sandstone/hiway_channel_fracturing.aspx

How does Schlumberger minimize environmental impact from hydraulic fracturing?

Schlumberger carries out hydraulic fracturing operations in strict compliance with local, state, and federal regulations using proprietary technologies that help to reduce the amount of materials needed.

Schlumberger is a recognized industry leader in technology, safety, and environmental performance. Proper wellbore design and job execution are essential aspects of all our operations. This includes proper well construction, use of quality materials and correct equipment, proper procedures, and well-trained workers.

Schlumberger operating standards and best practices are continuously evaluated to ensure that hydraulic fracturing is performed in a way that minimizes environmental impact.

What kind of chemicals does Schlumberger use in hydraulic fracturing?

- Fracturing fluids are developed and tested to evaluate their effectiveness with different types of reservoir rock. A fracturing mixture may be comprised of several components. Typically, more than 99% of a mixture is comprised of water, sand, or ceramic proppant, and natural thickeners such as guar gum.
- Less than 1% of a typical fracturing mixture includes additives that improve performance and minimize risk. These additives are often used in other well-accepted industrial applications such as food products, personal care products (shampoos, toothpastes, or perfumes), plastics, and household cleaning products.
- The mixture can include friction reducer additives to lower the friction forces in the wellbore, biocide additives to kill bacteria, and gelling agents to condition the water and help transport the proppant deep into the fracture.

Are the chemicals used in fracturing fluids a secret?

- In Europe, under a combination of regulations monitored by the European Chemical Agency (ECHA), there is complete disclosure of fracturing fluid additives.
- The United States is moving towards 100% disclosure of fracturing fluid additives via websites such as www.fracfocus.org.

Does Schlumberger disclose its fracturing fluid chemicals?

- Schlumberger is committed to achieving 100% disclosure.
- We work for the oil and gas companies and we fully disclose to our customers known chemical constituents we use, in order to support their disclosure requirements.
- The website www.fracfocus.com is an online tool for anyone to access information regarding chemical constituents used in fracturing wells in the United States.
- Of all the companies that develop fracturing fluids, Schlumberger has one of the highest levels of disclosure.
- In 2010 Schlumberger introduced to the industry a system-style disclosure process enabling full disclosure of known constituents in its fracturing fluid chemistry.

What is a “system-style disclosure” process?

- The process known as system-style disclosure lists all known chemical constituents in a fracturing fluid but decouples those constituents from their parent additives, thus maintaining protection of the proprietary chemistry used in hydraulic fracturing. It’s analogous to providing an ingredient label for noodle soup without specifying which ingredients are in the noodle versus the broth.

Is the system-style disclosure approach applied to every well?

- In 2010 Schlumberger introduced to the industry a system-style disclosure process enabling full disclosure of known constituents in its fracturing fluid chemistry. Schlumberger’s system-style approach is the exclusive process used within the U.S. and Canada.

Where was this disclosure taking place prior to FracFocus?

Do you have any disclosure forms available to verify this?

- Prior to FracFocus, our system-style disclosure process was implemented in Wyoming, Arkansas, and Pennsylvania, the three jurisdictions in which disclosure was required before the inception of FracFocus. Disclosure data and other verification is available from each state’s oil and gas regulatory agency.

Are you saying that Schlumberger has not claimed trade secrets on any fluid disclosure since 2010? Just want to make sure I characterize this correctly.

- No, we have and still do have instances of trade secret exemptions, but this is increasingly the exception rather than the rule. We are continuously reducing the number of trade secret incidences by working with our suppliers to identify alternate, fully disclosable products that do not contain trade secrets.

What is Schlumberger doing to reduce the amount of freshwater used in hydraulic fracturing?

- Schlumberger uses proprietary technology to reduce the amount of water needed. For example, the HiWAY flow-channel fracturing technique has reduced water consumption by up to 60% per well while increasing well productivity.
- Schlumberger recycles and reuses flowback or production water whenever feasible. Schlumberger water conditioning or recycling services remove suspended solids, oil, and greases while disinfecting, desalinating, and removing dissolved solids. Water treated in this way can be tested and reused in subsequent fracturing treatments or in other industrial services.
- With fracturing operations, finding the right balance between effective water treatment solutions, cost, and performance is a significant challenge. M-I SWACO, a Schlumberger company, offers water-treatment solutions that can treat post-operation surplus waters to meet disposal and discharge criteria.

Should hydraulic fracturing be more stringently regulated?

- Schlumberger believes there is currently sufficient regulatory oversight to ensure safe and effective hydraulic fracturing operations.
- Schlumberger supports such regulations and has taken a number of steps, including hosting site visits for state regulators and agency officials, to demonstrate how hydraulic fracturing is performed. We actively support public education initiatives through industry organizations, and we consult with our suppliers regarding the disclosure of their chemical compositions.
- Regulators have been working to ensure that the industry continues to operate safely with increased disclosure about water and chemical use, and to ensure affected communities are more informed about the oil and gas production process.