



Weatherford[®]

SureSlick[™] Slickwater Fluid Systems



Stimulating Reservoir Performance

Enhancing production by delivering innovative products to optimize your stimulation operations

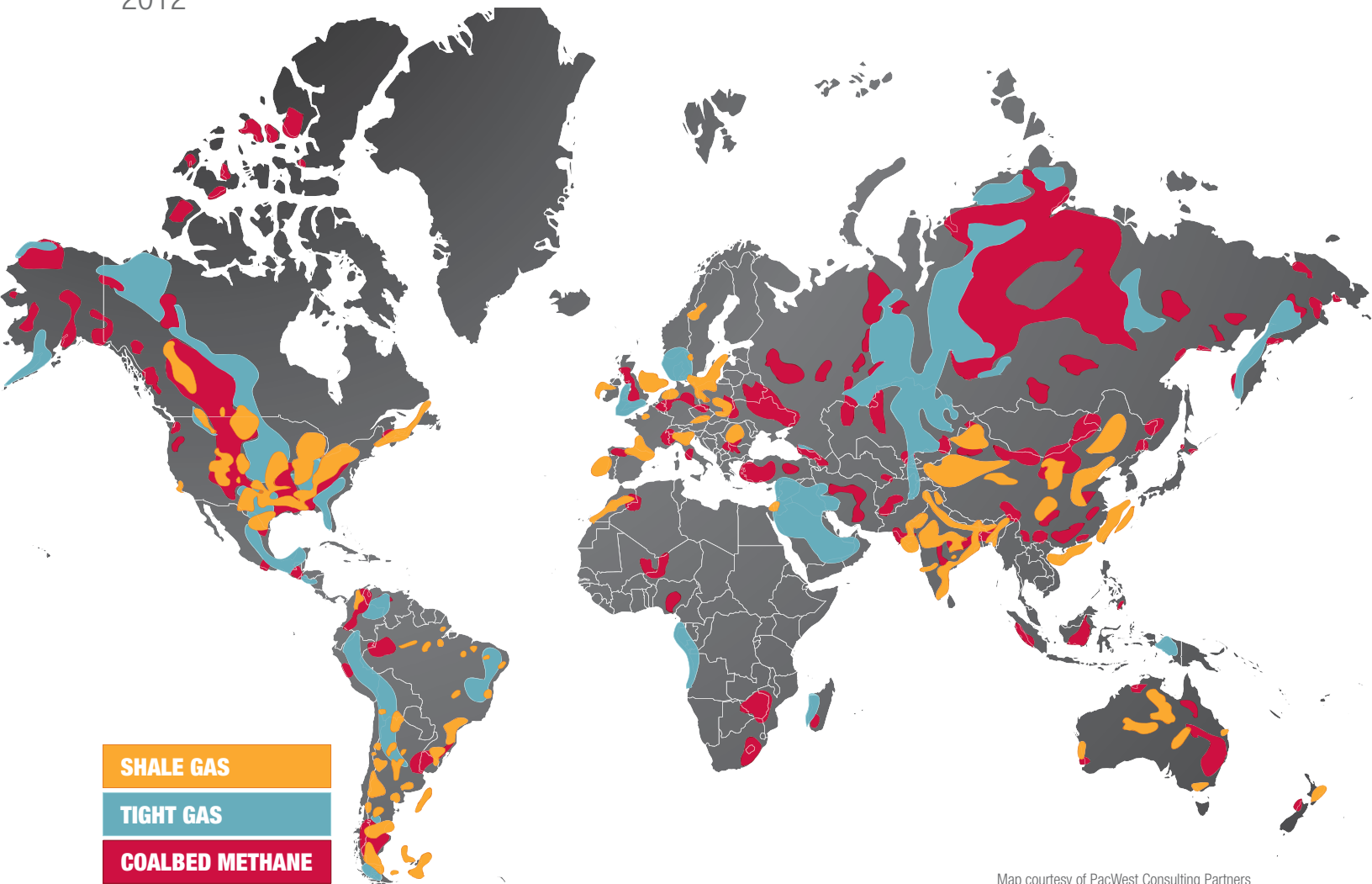
Looking to optimize recovery in unconventional reservoirs? Weatherford gives you the advantage.

As a leader in unconventional reservoir products and services, Weatherford is trusted by operators across the globe to enhance production and boost profitability. Over the years, this commitment has continued to grow as we work with customers throughout the United States and across the globe.

Today, as advancement in unconventional fields accelerates, Weatherford is at the forefront, providing proven drilling and completion capabilities and a steady stream of advanced products and systems. And our application-specific SureSlick™ slickwater fracturing fluids are a prime example of our commitment to unconventional innovation.

Worldwide Unconventional Plays

2012



Map courtesy of PacWest Consulting Partners



Proven performance, custom designed to your field's unique specifications.

Every field is different and presents unique challenges—and maximizing production and optimizing treatment economics depends on understanding the differences and variables. Most important, of course, is the type of formation. Even among formations of similar composition, there can be significant differences from play to play—which is where Weatherford's thorough analysis is particularly valuable. It's also important

to recognize that the properties of your fluid formulation will change, depending on whether you use clean municipal water or recycled water. In addition, the fluid's chemistry and compatibility with formation fluids and produced oil can make or break your economic success. Weatherford's SureSlick™ fracturing fluid systems provide the quality and flexibility you need to optimize production.

SureSlick systems are designed for easy customization, offering a variety of specialized options. With state-of-the-art screening and analytical methods—both in the field and in our research facilities—we can accurately quantify and recommend the correct additives. As a result, you get exactly the right formulation.

Friction reducers

for fresh water or brines

High-molecular-weight additives include anionic-emulsion polymers for enhanced friction reduction. These polymers hydrate rapidly to deliver optimal performance, even in low concentrations. As a result, pumping pressures can be lowered by more than 70 percent, reducing horsepower requirements and helping to control costs. Winterized versions, for easy handling and year-round use in colder climates, are also available—as well as cationic- and nonionic-polymer formulations.

Liquid and solid breakers

for enhanced cleanup

Weatherford's versatile breakers are effective in *SureSlick*, linear and crosslinked fracturing fluids, and they can be used in lower dosages as downhole temperatures increase. In polyacrylamide and guar-based slickwater systems, they oxidize gel polymers to destroy polymer chains and reduce viscosity, enabling flowback of the stimulation fluid while leaving proppant in the fracture. Active over a wide temperature and application range, breakers are also used in other fracturing fluid systems, including DynaFrac™ and MagnumFrac™ systems.



Scale inhibitors

for preventing or dissolving scale

Weatherford scale inhibitors provide advanced, reliable protection and are available in two formulations. The first is highly effective in a broad range of applications that contain calcium carbonate or magnesium carbonate—and it is also recommended for use when calcium, barium sulfate, strontium sulfate or iron scales are present. Soluble in hard water, this versatile formulation can be used in concentrated form or diluted with water or antifreeze agents.

The second formulation is a concentrated polyacrylate inhibitor that is effective against calcium carbonate, calcium sulfate, certain iron scales and barium sulfate. It is stable at high temperatures and can be used as shipped or diluted with fresh water to accommodate pumping and metering requirements.

Surfactants

for higher oil and gas production,
plus fluid recovery

Surfactants range from simple foamers and emulsion-preventing compounds to patented formulations that enhance production by improving fluid recovery and relative permeability. Weatherford's proprietary *SureSlick* solutions work by reducing surface tension and interfacial tension while decreasing the water contact angle.

ZetaFlow™ multipurpose additive

for enhanced conductivity, superior fines control and improved load recovery

This patented, multipurpose additive enhances conductivity and provides fines control in a variety of stimulation fluids and applications, while improving load recovery and production. The *ZetaFlow* additive works by altering the zeta potential of formation particles, promoting an agglomerative environment. Potentially production-damaging particles are fixed in place without restricting production; in addition, the formation is left less hydrophilic and in the optimal wetted condition. Also, because it agglomerates proppant, it helps to reduce—or even prevent—proppant flowback. With its unique chemistry, *ZetaFlow* additive can be used on sandstones, carbonates, coals and shales.

Biocides

for bacterial control

If not adequately controlled, some very common forms of bacteria can quickly lead to production-choking iron sulfide and slime. Weatherford has several economical choices to effectively protect against many types of microorganisms, including sulfate-reducing and algal-slime-forming bacteria.





A relentless commitment to innovation.

Weatherford's worldwide chemical research-and-development centers command a vast array of cutting-edge technologies, along with some of the industry's brightest, most experienced scientists and technical experts. The result is a continuous flow of innovations like the SureSlick™ system.

For economical production optimization, you can count on Weatherford to deliver quality chemical and fluid systems that are customizable to meet your specific needs.



SureSlick™ Slickwater Fluid Systems

Discover how Weatherford's SureSlick™ slickwater fluid systems can deliver consistently high quality and efficiency, from the reservoir to the wellhead. To get in touch with a Weatherford representative, visit weatherford.force.com/CPP. Or, you can find more information at weatherford.com/fracturing.



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