Applicability of Bactiquant®-water in Oil and Gas field operations

Water hygiene quality control - an indispensable requirement

Oil and Gas industry consumes billions of gallons of water in drilling, hydraulic fracturing and developing wells. The quality of the water is critical to the efficiency of the production, the quality of the production and the preservation of the well. A substantial cost in the management of this water is for biocides used to eliminate the bacterial load. Bacteria, both aerobic and anaerobic, are significant risk factors in production. Bacterial contamination can cause corrosion of the equipment and the well casing, it can deteriorate additives that are necessary in the production process and can sour a well before production even has a chance to begin. Monitoring the bacterial contamination is an essential part of the development and production of the well to ensure the best production outcome.

Long analysis times with traditional methods

In hydraulic fracturing, water is used to shatter or fracture the shale formation to release natural gas. The water used is amended with friction reducing chemicals, proppants, and other materials with properties specific to the location and geology of the formation. Bacterial monitoring of the source (usually surface) water is used to determine the mixture of additives and adjustments are made to maximize production. Flow back and produced water are monitored for anaerobic bacteria (IRB, SRB) and slime producing bacteria to evaluate the potential for corrosion, souring and clogging. However, the traditional methods for bacterial monitoring are time consuming, 3 days for heterotrophic plate counts (aerobic) and 28 days for serial dilution bottles (anaerobic) and highly variable due to the presence of algae, clays and other particulate.

Timely results with a robust technology for use on-site

Bactiquant®-water is a rapid technology for near real time monitoring of water for bacterial contamination, both aerobic and anaerobic. Fast, onsite results provide the ability to characterize biocide effectiveness, evaluate the biostability of the water, and monitor the microbiology that may cause corrosion, souring or fouling. Results can be obtained in as little as 15 minutes with a sensitivity of <100 cfu/ml.

The technology is applicable across a broad range of water types and sources and the analysis is not compromised by the presence of tannins, algae, clays or other materials.

The robustness of the technology makes it highly applicable even under the rugged conditions that characterize oil and gas operations. The technology was verified in 2012 by the US-EPA in their ETV Technology Verification Program.

Case studies

Mycometer are currently working on a broad range of application cases which will document how the use of the technology can present significant financial savings, reduced downtime of equipment, prevention of lost production and extended equipment life. These cases will be available during 2014.