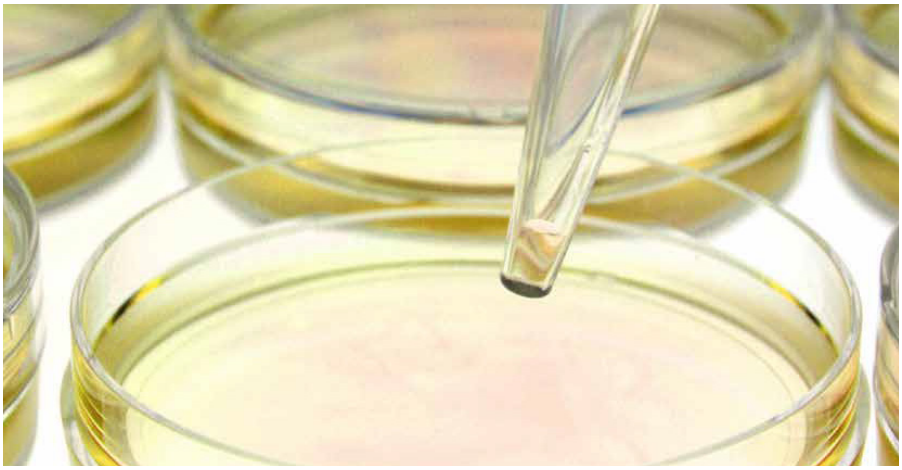
FACT SHEET

TRACKING DOWN PESKY BUGS IN THE OILFIELD

Protect productivity by adopting our unique BugTracker™ bacterial monitoring system

Biodeterioration of metals, fluids or gases, or processes such as flow, filtration and separation, is brought about by the presence and activity of microorganisms and can cause a wide range of financially-costly issues if left unimpeded.



Microorganisms are ubiquitous in the environment and surprisingly abundant in the oilfield. Although at times microbes can be used to our advantage (such as in enhanced oil recovery from ageing reservoirs) their unwanted presence everywhere from reservoirs to topsides, cause myriad issues as described in our blog "Tiny but vicious - Microorganisms in the oilfield".

The threat from microorganisms is perpetual and implementing regular monitoring and remedial action can be challenging. That is why Intertek designed a unique in-house web-based microbial monitoring management tool, BugTracker™, which can assist with establishing sampling schedules and facilitates reliable data trending.

As a holistic monitoring system, BugTracker constitutes the design, planning, sampling, analysis, data collation, result visualisation and reporting of valuable datasets. Once implemented a feedback loop encourages continuous development of the system.

As a Total Quality Assurance solution, BugTracker fosters a proactive approach to safeguard asset integrity, optimize system efficiency, and enhance health, safety and environmental protection.

Designing the system

Initially, a comprehensive understanding of the system will need to be formed to help identify areas most at risk from microbiological activity. To do this, our team will consult process drawings and relevant data from previous sampling campaigns and review material with operations teams (including process engineers, corrosion scientists and production chemists) to determine a suite of sample locations that will capture data from high-risk areas. This can be confirmed and verified with a site visit from one of our expert team members.

Creating a plan

Once suitable sample locations have been established a sampling campaign can be created. This schedule will instruct the end user on which samples to take, when and how to take them and which analysis to perform or prepare for. Timely prompts indicating sampling periods are emailed to the user and a dedicated account manager is always on hand to provide guidance and assistance.

New to Bugs?

Intertek provides a comprehensive training calendar for clients throughout the oil and gas industry, allowing our clients to increase the value of their operations and provide quality technical training to personnel. Boost your oilfield microbiology knowledge with our two-day Oilfield Microbiology course.

Sampling is key

One of the most important steps toward producing reliable data is employing proper aseptic sampling practices. In our previous blog "Monitoring Microorganisms in the Oilfield" we highlighted the necessary steps to safely obtain a representative sample. Sessile sampling will provide data on the microorganisms attached to the surfaces in the different systems and thus give information on potential imminent threats (see our guide on Sidestream); however, planktonic samples, which are more readily available, will function as indicator of potential risk. When samples are taken routinely, and results are displayed in trends, this dataset can help develop a picture of the different systems and indicate the microbiological status of the systems under test.

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BugTracker can be designed for small and large systems and for varying frequencies and schedules. Contact us to enquire about BugTracker and our other available products to help maintain microbiological control at your assets. Get in touch to discover how BugTracker can benefit you.

Testing and Analysis

Once the monitoring schedule is set up, various testing methods can be adopted, such as culture-dependent and/or culture-independent techniques. The former usually being the most probable number (MPN) method. Alternatively, quicker, more accurate molecular methods can be adopted such as quantitative polymerase chain reaction (qPCR) which utilises a DNA targeted approach (read more about molecular analysis). In addition to microbiological analysis, certain chemical testing is recommended to strengthen and support the dataset.

Data management

Using online data management tools all available data is efficiently stored in a customer portal where users can track samples, view test reports and trend data to assess system status. Moreover, individual tests (biological and chemical) from each sample can be selected or grouped together to illustrate a particular scenario. This can be used to track data in real-time as results are released, allowing timely action.

Delivering solutions

Crucially, the BugTracker tool offers Intertek's industry-leading expertise and experience to help succinctly interpret large datasets. An account manager will host regular review meetings to present findings and propose recommendations. All available information is continuously evaluated to determine the best course of action to respond to a bug problem, mitigate potential risk, and ensure safety and asset integrity.

Meet our expert

Dr Lloyd Potts
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Dr Lloyd Potts is a Senior Microbiologist in the Oilfield Microbiology department. Since joining Intertek in 2018 Lloyd has surveyed 20+ energy installations for microbiological risk and delivers technical expertise to clients. A keen molecular microbiologist he is always seeking opportunities to offer improved detection and monitoring methods. Lloyd has a MSc in Environmental & Petroleum Geochemistry from Newcastle University and studied for his PhD in Petroleum Microbiology at the University of Aberdeen.

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