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Case Study:

Oil Sands - Online Analysers for in
Situ Water Treatment



Online Oil-in-Water Analysers for in situ Oil Sands Water Treatment Applications

Recently, we assisted oil sands producers in Canada with a study to review and compare online oil-in-water monitors and benchtop oil-in-water measurement methods, select appropriate online monitors for testing and advise on pilot testing protocols and performance assessment.

The Challenge

During oil sands production, produced water is reused to generate steam, which is crucial for effective production. Before produced water can be used for steam generation, free and emulsified oil must be removed through an in situ oil sands water treatment process. At present, to monitor the treatment process, manual samples are regularly taken and analysed in the lab for oil-in-water concentration using bench top methods. If online methods can be used, this would allow for rapid identification of process upsets and optimisation of the deoiling process.

OVERVIEW	
Client name	Confidential
Industry	Oil & Gas

The oil sands producers were interested in assessing the capability of various online oil-in-water monitoring technologies before performing pilot testing on live fluids, to determine the suitability of these online analysers for use in oil sands in situ water treatment applications.

How did TÜV SÜD National Engineering Laboratory Help?

We used our extensive knowledge and experience on the subject to review and compare both benchtop measurement methods and online oil-in-water monitors and make recommendations on which online monitors to test in the pilot.

The design of the pilot test, test equipment and best approach for conducting the tests were recommended to the oil sands producers. A methodology was also proposed on how to assess the performance of online oil-in-water analysers through considering not only the test results, but also aspects such as installation, commissioning and operability of the monitors.

Impact

The guidance provided has allowed the oil sands producers to select the right online oil-in-water monitors for testing and to develop an enhanced pilot test protocol with greater confidence.

The use of online oil-in-water analysers for oil sand in situ water treatment is expected to greatly improve the SAGD (Steam Assisted Gravity Drainage) plant operation efficiency and safety. This will therefore lead to more steam being generated and enhanced oil recovery rates. It is thought that such an improvement could increase the NPV (Net Present Value) of a typical SAGD plant by hundreds of thousands of Canadian dollars. Following the project, the Oil Sand Producers have now selected three online oil-in-water analysers for a pilot trial which we continue to support.

