

Gushor Erupts on to Calgary Tech Scene

BY SANDRA SWEET

Most tech start-ups struggle to slug it out in a highly competitive market vying for investor attention. So, when an overnight success comes along, it tends to stand out.

That's the case with Gushor Inc., a spin out company from the University of Calgary with a ground-breaking technology that is making an impact on the oil sands industry in Alberta and around the world.

In August 2006, Gushor Inc. erupted onto the Calgary tech scene and boasts a customer list that reads like a who's who of the Calgary oil patch.

But there is no magic in their business formula. It all boils down to a huge demand for their services and a customer base that starts right here in Calgary. Gushor's magic is in their technology, which addresses some of the complex issues associated with Alberta's oil sands, one of the last major storehouses of oil on earth.

Gushor provides geochemical and reservoir engineering solutions to the heavy oil and tar sand industry by integrating geology, fluid geochemistry, and reservoir simulation.

The recovery rate of heavy oil only averages about 17 per cent worldwide. That means there is still a lot of oil remaining with conventional extraction methods. Increasing the efficiency with which heavy oil is extracted is a big part of the future of the oil industry.

A reservoir's fluid properties are a key part of heavy oil and bitumen production and companies should take these into consideration to accurately forecast production from heavy oil reserves, says Jennifer Adams, CEO of Gushor Inc.

For example, viscosity – whether the oil is light and flows easily or whether it's heavy, sticky and sludgy – makes all the difference in being able to simply drill the reservoir and pump out the oil, or having to use expensive steam injection to heat up and thin the oil so it flows.

"If we can tell companies which areas to look for oil that's light enough to produce

by cold production, that's much better than them having to steam the oil out of the reservoirs like they do in Athabasca," Adams says.

Oleh Hnatiuk works with Gushor in corporate development. He says the oil sands and heavy oil resources are more complex by virtue of the way they are formed, making extraction more difficult than in conventional oil reserves. Gushor is unique because they specialize in combining geochemistry and reservoir engineering to find solutions for the oil industry. The team at Gushor take their technology one step further by working in a specialized area of geochemistry – biodegradation.

Hnatiuk says, "Oil is an organic compound. Like other organic things it biodegrades over time. People are beginning to realize that understanding the level of biodegradation as it relates to heavy oil is important to the recovery of that oil."

Gushor has proprietary analytical equipment and the expertise to interpret the results of their analysis in a way that is useful to their customers, says Hnatiuk. They also do reservoir simulation studies – using proprietary techniques – simulating the way an oil reservoir might behave during production. They are using this knowledge to develop a new process to recover oil more efficiently and effectively out of heavy oil and oil sands.

Gushor's R&D continues to be a huge focus for the company. Chief Scientist Steve Larter, who is also a professor at the University of Calgary, was part of an international team of scientists that showed how crude oil in oil deposits are naturally broken down by microbes in the reservoir. Their discovery – recently published in the prestigious science journal *Nature* – could

revolutionize production from heavy oil reservoirs and residual oil from mature fields by leading to more energy-efficient, environmentally friendly ways of producing this valuable resource.

Adams says, like any university spin out, the company benefits greatly from continuing to have bridges to the university while establishing itself as a commercialized enterprise. Their location at the Research Transition Facility (RTF) in the University

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Research Park is the ideal headquarters for Gushor. The RTF is adjacent to the Alastair Ross Technology Centre (ARTC) and the Alberta Research Council that together form a hot bed of technology innovation.

A number of commercialization programs are available at the ARTC through CTI and University Technologies International (UTI), that have supported Gushor through the early stages of commercialization.

Hnatiuk says Gushor's success is made even more significant when you consider the importance of commercializing innovations developed in universities. "As a society we want the ideas developed by those great minds applied for the betterment of humanity. We want to be able to use that knowledge and we want to buy products that use that knowledge. One way to accomplish that is to make sure companies are built around these innovations."