

# FRAC RITE'S

## clean-up concept



*Gordon Guest and  
Gordon Bures.*

PHOTO BY GODFREY BUDD

### ***Applies oil patch technology to save contaminated sites***

**By Godfrey Budd**

Could essentially the same principles and technology that are used to fracture a tight hole to induce production be applied to the clean-up of contaminated sites?

Well, a Calgary company whose motto is, "Frac Rite puts oilfield technology to work for the environment," appears to be doing just that.

Two geologists and an engineer launched Frac Rite Environmental Ltd. (FREL) in 1995. The company's principals have developed proprietary tools, technology, and programs to remediate and clean problem sites.

One of the principals, **Gordon Guest**, is a geologist who has specialized in geo-technical and geo-mechanical testing, and is the designer of a proprietary downhole tool that helps make the fracing at contaminated sites work. This tool enables a rig, which

can be operated from the back of a three ton truck, to create as many as 18 high permeability fractures in a 10 or 12 hour day.

Guest explains that getting a contaminant to move up from where it's lodged in silt or clay soils involves the same principles as fracture stimulation to induce crude oil to the surface. "The difference between oil in the ground and a contaminant is that the contaminant is at a shallower depth and typically as a result of an accident."

Cleaning the soil on site means that "you don't end up transporting the problem somewhere else," says Guest.

The company, which recently broadened its services to include redevelopment of "brownfields," was able to help a mom and pop gas station operation solve its site contamination problem at a price the owners could afford. Initially, the one of the owners echoed the quote he had got from another environmental company with this challenge to Frac Rite. "If you are going to give me a price of \$300,000, forget it!"

The worried gas station owner and his wife, who were hoping to retire with a nest egg intact, had a budget of about \$100,000 for the clean-up. The owner was told that Frac Rite would do the job within or below budget. The cost, notes **Gordon Bures**, the company's engineer, "is far less than it would be for excavation."

The procedure to clean the site involved a series of processes that

parallel standard fracture stimulation: drill into soil; fracture; install recovery wells; and extract contaminants from groundwater; hydro-carbon vapour extraction; and bio-remediation.

The last process, which is done, if necessary, once a network of high permeability sand-filled fractures are in place, involves the injection of "chitin," a natural polymer found in sea crustaceans, that acts to bio-degrade the subsurface contaminants.

The over-arching concept, Guest emphasizes, is this: "If it, oil or contaminant, can migrate away from where you want it, it can also migrate towards where you want it."

The third partner in the company, **Robert Fulton**, is a geologist who specializes in fluid chemistry and design. The three work as a team on the engineering, design and geology for each project. Bures, an environmental engineer who has specialized in contaminated site investigation and remediation programs, assesses such issues as where and when to apply the technology and how many holes to drill. Guest evaluates such issues as the appropriate depth and which tool to use; Fulton formulates fluid design for the drilling and extraction programs.

Company literature includes comprehensive resumes for each of the three principals, who met while working at Calgary-based Golder Associates Ltd. A look at their resumes, all three of which highlight increased focus on remediation and/or fracturing, argues that the formation of Frac Rite by these three oil and gas professionals was a natural and logical convergence of skills and experience.

The recent discovery of petro-chemical contamination in Calgary's Lynnwood district put the spotlight on what could be a growing problem in Alberta.

"More and more rural people are finding soil and groundwater contaminated. It can be caused by anything from vapours to an old flare pit," says Bures. The economics of this can devastate landowners. "Banks won't lend money on contaminated property," he notes.

Frac Rite's clientele, these days, is split 60-40 between downstream and

upstream with the bigger share drawn from the downstream. Sites requiring the company's proprietary clean-up technology on the downstream end have included retail gas stations, fuel bulk plants, industrial solvent manufacturing locations, and storage facilities. Upstream sites that have used Frac Rite's services include some of the usual suspects, former gas processing plants, flare pits, battery sites, well sites, and refineries.



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Despite the menace of soil and water contamination, increased public concern, tougher environmental regulation, and a proliferation of environmental services, Frac Rite's first few years included some bumpy struggles to stay afloat. The three partners initially worked out of their homes, operating the business on a shoestring budget. When they began trying to shift industry and environmental consultants from a traditional approach for dealing with contaminants and get them to try something new, it seemed as if they had come up against a brick wall. "A lot of the challenge was to prove that it (Frac Rite's technology) worked. The next challenge was to persuade consultants and industry to move from a monitoring and problem definition model to remediation," says Bures. "It was a rocky first three years."

That's changed. The company has acquired a profile in Canada and the U.S., its finances have stabilized, and a couple of years ago it moved into new headquarters in a downtown Calgary office tower.

By far the biggest market for Frac Rite's technology and services could be in the U.S. In Canada, most soil and water contamination is limited to one major source, hydrocarbons, says Guest. On the other hand, contaminants in the U.S. come from a wide range of sources. The Environmental Protection Agency, the Department of Energy and the U.S. military have huge contaminated sites within their jurisdictions.

Bures points to the fact that the EPA, which receives more than US\$10 billion annually for environmental clean-up, is on the hunt for innovative ways to clean-up its contaminated sites.

The company has notched up a series of successes for its technology in B.C., Alberta and Saskatchewan, plus a project in Belgium. Given the extent of contamination in the U.S. and the size of the budget to clean-up the mess, it's possible that Frac Rite has turned a corner that could lead to the big time with its successful participation in some recent—and ongoing —EPA-supported projects. 🍁