

The warm glow of geothermal

Canadian drillers take advantage of a new profit source and a new drilling technology.

IN THE lower mainland of British Columbia, Canada, a region known for its adoption of alternative energy sources, the call that came into Sonic Drilling Ltd.'s office was a typical one. On the other end of the line was a rival drilling company asking for help in completing a geothermal project on time.

"In this case, it was a greenhouse nursery where the competitor's rig had been able to drill only about 50 ft. in two weeks," says Bill Fitzgerald, general manager for Sonic Drilling, a contracting company based in the Vancouver area with a fleet of sonic rigs supplied by Sonic Drill Corp.

"They had hit lots of mixed sand, clay and gravel," explains Mr. Fitzgerald. "It's hard sometimes for people to understand that we can just buzz right through all that." Indeed, the skeptics often shake their heads disbelievably when confronted with the evidence of a Sonic rig in action.

In a recent example, Fitzgerald recounts a geothermal installation that one of his rigs assisted on – helping to finish a library/classroom addition for the Langara community college in Vancouver, a project that subsequently won an award for sustainable construction.

In the Langara case history, three standard rigs had been working the site for nearly two months and, in that time period, they had succeeded in drilling 18 holes in total.

"It was a driller's nightmare," says Mr. Fitzgerald. "It was a little tough, even for us."

Under the Langara site, the soil was a diverse mixture of sand, till and gravel and littered with large boulders – daunting terrain no matter what kind of rig worked it. Despite the soil conditions, a single Sonic rig was able to drill, case, loop and grout 23 geothermal holes in two weeks flat. It was a stunning result given that it had taken three traditional rigs nearly two months to accomplish less.

One of Sonic's rigs in action.



Speeding up the work at Langara, Vancouver.

"You can imagine how happy they were to see us do that," says Mr. Fitzgerald, with a grin.

With speed like that, the company says it is clear to see that the costs per metre when using a Sonic rig translate into significant savings, and it is just as easy to see how Mr. Fitzgerald can claim that the Sonic is actually cheaper in many applications than its traditional counterpart.

REACH FOR THE SKY

With a reputation for being the fastest drill in town, Sonic rigs are now boring their way through Europe, Asia, North America, South America, Africa and the UK. So how did sonic drilling technology become so popular and, perhaps more interestingly, who invented this rig anyway?

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The company says the short answer to the first question is, quite simply, that it is the right tool for the job and, in many cases, the only tool for the job. The second question, however, deserves a slightly longer answer.

The history of sonic drilling technology is actually a story about the efforts of many but it is Ray Roussy, president of Sonic Drill Corp and Sonic Drilling Ltd., who lays claim to the prize of improving the technology to the point that he could patent his improvements and commercialize a sonic drill that is both reliable and field-tested.

Although the roots of sonic drilling technology can be traced back to the work of George Constantinesco, a Romanian intellectual who emigrated to England in 1910 and published his ‘Theory of Sonics’, it would take many more years of research by the likes of Romanian engineer Dr Ion Basgan, American inventor Albert Bodine (funded by Shell Oil) and engineers at the British-owned Hawker-Siddeley, before a viable drill was created.

As one of those original engineers at Hawker Siddeley, Mr. Roussy made the life-altering decision to pick up the torch of sonic drill research and development when the aircraft company experienced a downturn in the 1980s and dropped the sonic project. Today, after 27 years of field-testing and development, Mr. Roussy has not only patented his drill but he has succeeded in commercializing the vision of a man 100 years earlier.

How pleased Mr. Constantinesco would surely have been to see the Roussy sonic drill in action today; boring three to ten times faster (depending on soil conditions) without using any drilling mud and able to provide continuous core samples to depths of more than 300 ft. (100 m).

Canadian technology keeps converting skeptics into believers – a fact that Mr. Roussy hopes will eventually revolutionize the drilling world, one geothermal loop at a time.