

Aviation engineering heads down to earth

GDI editor Luke Clancy asks Sonic Drill Corp president Ray Roussy about the origins of his sonic technology and how he sees the industry developing.

Q How did you start in this line of business, Ray?

Working at Hawker Siddeley in the 1970s, I was tasked with a project that was both intriguing and challenging: to engineer and refine a vibratory pile driver and drilling rig.

Unfortunately, by the early 1980s, a recession had discouraged Hawker Siddeley from continuing work in this field but, by that time, I was convinced that sonic drill technology was viable. It turned out that I was right, but it also turned out to be a lot more work and would take a lot more time and money than I thought it would. What I thought would take two or three years actually took more like 15 years.

I left Hawker Siddeley in 1980 to continue development work on the sonic drill and to adapt it to different applications. At least three years were spent trying to get conventional financing of one type or another. Like many other innovators out there, the banks turned me down cold.

Canada also had research and development programs so I spent a considerable amount of time pursuing that avenue as well, but I still couldn't raise the money. Considering that a larger company such as Hawker Siddeley had tried to develop technology before me, there wasn't a lot of confidence that I could do it. I even examined the possibility of going public on the stock exchange. Then we had a stock crash in 1987 which put an end to those plans.

Eventually, with so many doors closed, I decided there was only one way to do this: finish a drill rig and put it in operation. In the early 1990s, Boart Longyear indicated an interest in the technology and placed me on a retainer while they investigated the merits of it. Eventually, they made me an offer but I decided that it would be more profitable and beneficial to continue doing it my way.

Since then, the technology has been improved, patented and we now offer complete rigs – in various configurations – and associated tooling. We also licensed the technology to Tone Boring, a Japanese company that produces equipment based on our technology for the Asian market.

Today, the sonic rig is literally boring its way around the globe, with machines working in Europe, Africa, South America, Asia and of course, North America.

It is now our clients who are trail-blazing with their sonic drills – they are the ones out there using it in applications we never envisaged.

Below and opposite: Ray with his beloved Navion light aircraft which he uses to visit Sonic clients and contractors. Ray is a long-time pilot who has done many cross-country trips across North America piloting his own aircraft. He was also a member of the Fraser Blues, a civilian formation-flying team.



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Q You also have a contracting division?

Yes, Sonic Drilling Ltd. Initially, we set up the contracting division so that we could use sonic drilling equipment to prove out the technology and make money so that we could fund further development. It's a separate company but it provides valuable assistance to the manufacturing division – Sonic Drill Corp – because it allows us to bring clients to Vancouver, show them how the machines work and it continues to allow us to conduct real-life testing.

Needless to say, this equipment has taken a very long time to develop, but you need a substantial amount of time in order to get to the point where you can guarantee a long life for your drill rig.

Q Where are you seeing the most growth?

There are various niche markets for a sonic drill: environmental investigations, geothermal installations, mineral exploration and water-well drilling – but, by far, the geothermal industry is where we're seeing the most stunning growth, to the point that we've had a hard time keeping up with it.

We believe the geothermal industry is going to get bigger than what we can possibly handle but, because of its fast growth, it's a little fragmented. The big problem I can see for geothermal as an industry is the sheer number of holes that need to be drilled in the ground over the next few years – we're just seeing the very tip of it now.

Over the next few years, there's going to be way more holes to be put in the ground than there are machines or drillers available. Unless some larger body addresses that issue and starts providing an enticement for drillers to get into the trade and provides training for those drillers, then we're going to face a big staffing shortage.

Q And that must impact on how you expand as a company?

It's quite a challenge to expand a drilling company. Since we're not buying used equipment – it's all new equipment – the capital cost is very high. Having said that, our machines have established such a good reputation for their performance that it would be impossible not to expand. We want it and our clients need it. However, the staffing shortage is already impacting our ability to grow.

Q What effect do you think the introduction of sonic has had on the market?

Without sounding overstated, our sonic drill rigs have revolutionized many aspects of the drilling industry. Take an environmental investigation, for example. Before us being on site, contaminated sites were typically handled by auger rigs and when ground conditions got tough, they would use a diesel top-hole hammer with reverse circulation. It was slow and expensive and the hammer spat out unburnt diesel fuel all over the place, making it an unappealing option.

On the other hand, a sonic machine is three to five times faster, creates far less mess – no drilling mud required – can buzz through all sorts of mixed geology and provides undisturbed core samples to 300 ft. (100 m). Once we came on the scene, the diesel hammer disappeared on environmental sites.



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Q How important do you see the promotion of good health and safety practices?

In North America, safety is a huge issue. Not only does it affect the workplace, but safety has a tremendous impact on people and their families. It's critical that all industries keep their personnel safe – no one gains anything from lost time, lost limbs or lost trust.

In some cases, oil companies are actually structured so that part of their bonus remuneration – this is for executives – is based on having the fewest accidents as possible in the workplace. As a result, they will not hire sub-contractors who lack a good safety record and who do not meet all the regulations.

Q What does the future hold and what is next in your game plan?

I'm 58 now but I feel I've got at least another 12 years to work. In that time, I hope to continue introducing the sonic drill to every industry or company that could benefit from it. I know that drilling companies, big or small, are driven by profit margins and I know our rig can help them see a much bigger margin.

As far as a succession plan, that's a tough question. I wrestle with it all the time. Long ago, we outgrew the family business model so now I need some long-term planning and a vision to the future to ensure the company's continued success.

I know, however, that we've already added a chapter to the drilling history books by being able to refine, patent, manufacture and market a commercially successful sonic drill rig. We've taken the technology from the laboratory to the marketplace.