

Ray Roussy

Mechanical engineer devotes career to revolutionizing the drilling industry using vibration.

By Jennifer Strawn

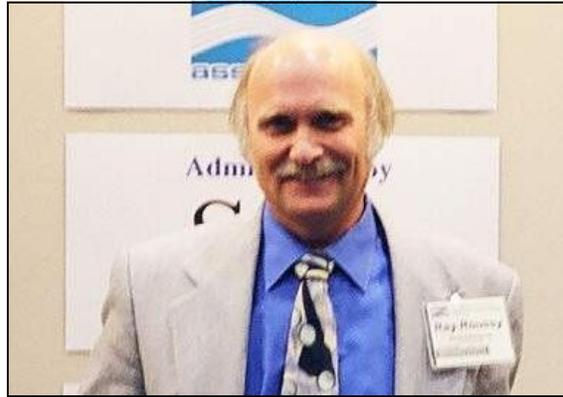
Ray Roussy fell in love in 1974. The object of his affection was everything he was looking for — it was exciting, interesting, and challenging. And 32 years later, his feelings haven't changed. Sonic drilling technology captured his heart. And his passion for it has inspired him to devote his entire career to seeing it successfully sell in the drilling marketplace.

"It suited my particular interests," says Roussy, president of Sonic Drill Corp. in Bellingham, Washington, and Sonic Drilling Ltd. in Surrey, British Columbia. "Once I got into it, I realized it had the potential to change the drilling industry."

As a young mechanical engineer working for Hawker Siddeley, a British aircraft manufacturer, Roussy first discovered sonic drilling. The company bought vibratory drilling and pile driving equipment in the early 1970s from American inventor Albert Bodine in order to develop the machines for Canada.



Sonic Drilling Ltd. installs a 4-inch PVC riser pipe in an observation well with a sonic drilling rig. The well is one of several observation wells to monitor the performance of a 20-inch-diameter municipal water well.



Ray Roussy, president of Sonic Drill Corp.

The machines added sonic vibrators to the drill pipe string of a conventional drilling rig. The result was a rig that could drill with increased depth and speed. Unfortunately, Hawker Siddeley's drill heads were prone to frequent breakdowns and by the mid-1980s the company discontinued its research due to lack of funding.

Although still unreliable at that point in time, Roussy believed in the sonic technology and wasn't ready to give up on it.

"I knew that this was a much better way to drill than existing technologies," Roussy explains. "I remember standing and watching a cable tool drill. I saw that in one hour I could do more work than this machine could do in three or four days."

So Roussy created Sonic Drilling Ltd., a contracting company that would use sonic drill heads to drill for environmental and geothermal applications. Sonic Drilling Ltd. not only tested Roussy's equipment as he researched and refined the technology, but would later be used to demonstrate the equipment's effectiveness to potential customers.

"The goal has always been to introduce this technology to the marketplace," Roussy says.

He knew, though, that it would take a long time. No matter how much potential the technology had, he expected drillers to be hesitant to change their drilling methods.

"No one is going to buy something like this unless they have a need for it and they know they can make money," Roussy says.

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The equipment is expensive. Rigs can cost about half a million dollars. So, "it's a serious investment for many contractors," he admits.

But the equipment is worth the investment, Roussy argues. He has redesigned the drill heads to be more reliable since leaving Hawker Siddeley in 1983.

"Over the years, we've got those machines to an extremely high state of reliability. They can operate for years and years without any maintenance other than changing a few seals," he says.

So far, geothermal and environmental contractors seem to be the most interested in his sonic drilling rigs.

"The main goal for geothermal drilling is putting holes in the ground as quickly as possible to insert heat loops. (Sonic drilling) is considerably faster, plus it has the ability to go through difficult ground where there are cobbles and boulders," Roussy points out.

Using a sonic drilling rig, Roussy claims he can drill holes by vibrating the casing at high frequency and pumping water at the same time. That allows him to case the hole, insert the loop and grout, and then vibrate the casing back out in one operation. In environmental drilling applications the main advantage of the sonic drill is its continuous coring feature.

Innovations, though, have been slow going. Like his predecessors, his research has required a lot of money and finding the funds wasn't always easy. Roussy wanted to keep the company private, so he had to raise all of the money needed for development.

"It all boils down to finances," Roussy sums it up. "If I had the resources to develop the technology faster, to market it faster, and put it in use in various parts of the country, we could have done miracles."

Roussy had been awarded patents on the improvements by the mid-1990s and began selling his first drill heads and other tooling for use with rigs already available on the market. Sonic drill heads were sold to companies such as Boart Longyear's Environmental Drilling Division and to Versa-Drill International, which developed rigs using Roussy's drill heads.

The technology wasn't catching on as quickly as he hoped, so he spent the next few years developing his own rig using sonic drill heads. Sonic Drilling Ltd. tested the rigs, and now Roussy sells the drill heads, tools, and rigs through Sonic Drill Corp.

Sonic Drill Corp.'s sonic drilling equipment also works for many applications including monitoring wells, irrigation wells, and aquifer exploration.

Soon, Roussy plans to promote sonic technology in the residential water well market. Roussy completed the first water well using a sonic drill in the early 1990s, but the company hasn't really had the time to put much focus on the area.

"You can use it like an air or mud rotary, but you've got the added benefit of vibrating the drill pipe," Roussy says. "In the case of water wells, what this allows you to do is drill and case a hole and then construct a water well inside of the casing. You have a protected hole, so you can have what we call a perfect well installation."

As Roussy continues to promote the technology and equipment, he's confident even more drilling markets can benefit from using sonic drilling.

"Here I am, 32 years later. I'm still doing it and enjoying it, so I figure I've got quite a few more years of pushing it," he says.

And until this love affair ends, Ray Roussy will still be sonic technology's biggest supporter.