



The Buzz

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NGWA announces Ray Roussy is 2012 award winner

The National Ground Water Association (NGWA), a nonprofit organization composed of U.S. and international groundwater professionals, recently announced that Ray Roussy, PE, president of the Sonic Drill Corporation and Sonic Drilling Ltd., has won its 2012 Technology Award.

The NGWA award recognizes an individual's major contributions to the groundwater industry in the development of ideas, tools, and/or equipment. The award will be presented in December at the NGWA Groundwater Expo and annual meeting in Las Vegas.

The award is the third in as many years for Roussy's remarkable patented sonic drilling technology. In 2008, Roussy was recognized by the Canadian GeoExchange Coalition, supported by Natural Resources Canada (a federal government ministry), with its prestigious award for "best new drilling technology" and a \$10,000 prize. Then, in 2010, Roussy accepted a coveted Manning Innovation Award and a \$10,000 prize for his development of modern sonic drilling technology.

"I'm delighted to win this third award from such a respected organization as the NGWA," says Roussy. "After spending more than 30 years on sonic drilling technology, I can't express how much I appreciate seeing the technology being recognized by my peers for what it can do."

Sonic Uses WWII Landing Craft as Drilling Platform



Sonic rig makes history using WWII landing craft platform

In 2011, a sonic drill made history when it was used for the first time on a former WWII US Army landing craft – the Brandywine – as an offshore drilling platform. Today, the Brandywine is impressively refurbished and owned by Seaworks – a group of companies that provides offshore, subsea and marine vessels, ROVs, equipment and services.

Working up to 15 miles off the coast of New Zealand, the sonic rig was tasked with coring through iron sands for a feasibility study – looking for a mineral that could produce millions of dollars in profit.

"In the past, sonic rigs have done some offshore drilling near Brazil and in the Beaufort Sea but this was definitely new and different using the landing craft," says Randy Pruden, a sonic drilling specialist and 30-year drilling veteran.

Pruden had been sent by the drill's manufacturer, the Sonic Drill Corporation (SDC), to be on hand for any mechanical assistance but, as it turned out, Pruden conducted almost all of the actual drilling due to the challenging conditions.

"There's no support when drilling on an ocean so there are some special considerations when everything is moving around," says Pruden. "We had a company out of Texas manufacture special steel drill pipe that didn't flex which was critical."

To accommodate the drill, the Brandywine had a "moon pool" cut out of its center which allowed the sonic drill to access the ocean beneath and helped to keep it stable. Still, a 1.5 m (4.5 ft.) wave was the limit the drill could tolerate due to heave compensation. At one point, the Brandywine was hit by the remains of the devastating Japanese tsunami wave but the platform and drill suffered no damage.

"Getting accurate core samples is absolutely necessary when there are millions of dollars riding on the accuracy of the cores and calculations," notes Pruden. "The sonic rig provided undisturbed accurate cores that were representative of what was actually in the seabed."

Initially, the sonic drill had an 86% core recovery rate from the saturated sands but, eventually, 100% core recovery was reached. "The client, Fugro, was very happy with the results and I was happy because there was zero damage done to the drill steel so the costs were very low."

With some holes being drilled to a depth of 76 m (250 ft.), the project used an SDC 550 sonic rig on tracks with a 50K head – the largest rig made by the Sonic Drill Corporation.

During drilling, the sonic rig encountered lots of sand, flyrock and cemented coral which made conditions difficult but not impossible. "It took about seven hours a hole to drill because of conditions and the tide change – sometimes it was dropping so fast," says Pruden.

"We worked 24 hours a day with me drilling and then, while I was sleeping, they would lift the anchors and move the platform to a new location," Pruden says. "We did that for three straight months. I started to pray for storms," he adds with a chuckle.

Still, he says the Brandywine was a great craft to work from with comfortable amenities that included his own cabin and food prepared by "a very good cook." The fishing was also excellent, he says, with a grin.

7 Out of 10 Sonic Drill Rigs Used for Mining



Accurate, undisturbed sampling

Mineral exploration in unconsolidated material has always been a risky proposition primarily because, in the past, there was no economical, versatile or accurate method of determining where to mine. With the advent of sonic drilling technology, that has all changed.

Ray Roussy, patent holder and the developer of modern day sonic drilling technology, says "it was surprising for us to realize that 7 out of 10 sonic rigs are purchased for mining exploration." Initially, the sonic drill rig had been seen as a powerful environmental investigation drill due to its ability to provide undisturbed core samples.

Although the diamond drill has long been the preferred tool for mineral exploration in hard rock, it has consolidated material, it has two unfortunate drawbacks. First, it doesn't drill well in unconsolidated materials and, secondly, it can't provide accurate core samples from those kinds of formations. Only a sonic drill can recover a continuous core including boulders, clays, silt, sand and gravel and lay it in its stratigraphic sequence – from the surface all the way down to 300 ft (100 m) and deeper.

Using Roussy's patented sonic drill head, samples, ranging from 3" to 8" in diameter, can be obtained from a wide variety of mineral deposits including hard-to-extract oil sands, slag piles, mine tailings and heap leach pads.

Extruded into clear plastic sleeves and then neatly laid out, these core samples can be subjected to a detailed visual examination and analysis, followed by sampling, photographing and archiving for a permanent record of the existing mineral conditions. In other words, the gold, or other valuable mineral, remains where it was found in the sample. As well, cased holes, provided by the sonic drilling technique, prevent the collapse of the borehole and ensure that cores are not contaminated by up-hole debris.

By creating a comprehensive description of the lithology and stratigraphy of the underlying geological setting, a prospective property can be evaluated in the most accurate manner possible.

Drilling 3-5 times faster and able to provide accurate core samples, the Roussy's sonic drill has overcome all of the traditional hurdles to cost-effective mineral exploration in unconsolidated material. In hindsight, its enthusiastic adoption by mineral exploration companies is not surprising, after all.