

## A New Era for Crater Lake Drilling

Referring to his vision of expanding his geothermal operations into more rugged and demanding terrain, Gary Whitesell, owner of Crater Lake Drilling Ltd, said: "I needed more rig."

In 2002, while looking into a geothermal heating and cooling system for his own home, it occurred to Mr. Whitesell that this rapidly-expanding field could well be the source of future business opportunities for his drilling company, based in Red Deer, Alberta, Canada.

When Crater Lake Drilling branched out into the field of geothermal in 2002, Mr. Whitesell had his auger machines refitted specifically for this activity, but he soon discovered the limitations of his equipment when trying to bore into terrain that was more challenging than types he had previously attempted. While his augers were well-suited to the geology of Alberta (mostly ancient sea bed and shale), Mr. Whitesell said he needed a more aggressive piece of equipment to have the capacity to drill in other regions of western Canada.

"I discovered the sonic drill while looking for new drilling equipment online and in various trade magazines," he said. "That was followed by an on-site visit to the Sonic Drill Corporation in BC and, later, by witnessing a sonic drill in action during a day-trip to Vancouver."

The field trip to see the demonstrated sonic drill convinced Mr. Whitesell that this was exactly what he was looking for in terms of more robust drilling equipment. In June 2008, Crater Lake Drilling took delivery of a Sonic SDC-550 steel track-mounted drill, and, not long after that, put its new equipment to the test on a geothermal drilling project for a resort in Invermere, BC.

He said: "The land on which the Copper Point Resort was being built was glacial till – clay, sand and gravel, top to bottom. We were contracted to bore a series of holes adjacent to an existing condominium structure for a geothermal installation." Mr. Whitesell said that, because this was Crater Drilling's first project with the sonic drill, there was the inevitable learning curve of training a three-man crew on how to use the equipment properly, as well as discovering the capabilities of the drill in the field.

"We were able to drill 136 holes to a depth of 250ft on a three-month period, although for various reasons we were not able to drill every day as other building operations were taking place in and around the resort," said Mr. Whitesell. "On average, we drilled three holes a day, which we believe is quite good in a highly resistant terrain with lots of gravel in it."

Mr. Whitesell is looking forward to warmer weather and more opportunities to put his sonic drill to the test. Because of the winters in northern Alberta, there is no geothermal activity at that time of year. The extreme cold is not the ideal environment for the proper handling of loop pipe and grouting.



## Features

However, Mr. Whitesell believes that, as geothermal becomes more widely known and applied, it will eventually become a year-round field of activity which may require adapting the sonic drill to specific environmental conditions – such as winterizing the equipment to respond to the growing demand in this emerging market.

“I think its versatility is what makes the sonic drill a leader in its field. It is the most multi-functional piece of equipment I have ever seen in the drilling industry,” he said. “Its core sampling capacity is second to none and it will allow us to go into terrain and bid for jobs that our conventional auger equipment could not allow us to do.”

At first glance, a sonic drill rig looks very much like a conventional air or mud rotary drill rig but a big difference can be found in the drill head, which is slightly larger than a standard rotary head. The head contains a mechanism necessary for rotary motion, as well as an oscillator, which causes a high frequency force to be superimposed on the drill string.

The drill bit physically vibrates up and down, in addition to being pushed down and rotated. These three combined forces allow rapid drilling through most geological formations.