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## A New Era for Crater Lake Drilling

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"I needed more rig," says Gary Whitesell, owner of Crater Lake Drilling Ltd., referring to his vision of expanding his geothermal operations into more rugged and demanding terrain. In 2002, while looking into a geothermal heating and cooling system for his own home, it occurred to 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, 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 what he had previously attempted. While his augers were well-suited to the geology of Alberta (mostly ancient sea bed and shale), Whitesell says he needed a more aggressive piece of equipment to have the capacity to drill in other regions of western Canada. 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.

"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." Whitesell says 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 250 feet during 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. 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," says Whitesell.

"I don't believe there is another rig out there that could have allowed us to do that," he adds. "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. 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. I think what it comes down to is that the sonic drill really has a market all its own that no other rig can touch."

### Breathing Easier with Geothermal Energy



While it's entirely feasible to install a geoexchange system in a smaller, older home, most believe that residential geothermal installations are best suited for new houses larger than 3,000 sq. ft. "A lot of people actually tried to talk us out of installing geothermal in our new home because it is only 2,500 sq. ft.," says Jennifer Magee, who, along with husband Bradley, is the proud owner of a new home in Langley, British Columbia, Canada. "Because our home is smaller, it will take about 15 years before the system is paid for but it's still the best thing we ever did," she says.

The Magees list the positive effects on the environment and the possible health benefits that a geothermally heated and cooled home can offer as their main reasons for opting for a geoexchange system. "I've heard that it's better for people with asthma or allergies...I have bad asthma and allergies so I wanted something that would be cleaner, minimize dust and not blast the house with dry air," says Magee. "I also like the idea that our system would be doing something good for the environment and I think it will also increase our re-sale value by about 20 per cent because the banks are now recognizing this as an asset. In time, I believe eventually every home will have a geothermal system and people will be saying furnace...what's a furnace?"

With a tight working space, a tight budget, and silty, sandy ground beneath them, the Magees had arranged for a sonic drill rig, known for its speed, to bore four holes, each to a depth of 200 ft. With the ability to drill through overburden material at a rate of 3-5 times faster than other methods, the sonic rig was only on the Magee property for one day.

Today, the Magees are living and breathing comfortably in their radiant new home – delighted with its obvious geothermal advantages. "It's quiet, there are no cold spots, every floor has an even temperature and my 65 houseplants just love it," says Magee. "Going geothermal was a sound investment that we made for both our health and the future."

### Geothermal Quick Facts

#### Geothermal Energy for the Home



- A mid-sized home using geothermal energy can have the same impact on carbon dioxide (CO2) emissions entering the environment equivalent to the planting of one set of trees per year.
- Using geoexchange technology, the earth's stored heat is extracted through a loop system and pumped to a heat pump or exchanger, which in turn circulates the heat through the duct system into a building. In summer, the process is reversed: indoor heat is extracted from the air and transferred to the earth, producing a cool stable building environment.
- Unlike gas or oil wells, geothermal energy does not run out. As energy is withdrawn to heat a building, it is replenished by the sun, all without burning fossil fuels or dumping harmful gases to the atmosphere. The average home can reduce CO2 emissions by 2.5 to 5 tonnes annually by using geothermal energy instead of electric heat or by burning fossil fuels.
- On average, a geothermal system can produce heat with an average savings of 65 per cent over natural gas, 75 per cent savings over fuel oil and 80 per cent savings over propane. This results in a 4-6 year payback on the cost of installation.

