

Dirt Into Gold

Turning Canada's dirt into gold has become more viable in unconsolidated material with the advent of new technology writes Nancy Argyle, director of marketing and communications, Sonic Drill Corp.

As the second largest country in the world, Canada's substantial land mass of more than 9 million sq. km. contains some of the most diverse geology on the planet. From arctic ice flows to sub-arid deserts, the Canadian landscape offers a stunning variety of conditions for drillers. With mountains that scrape the sky at heights of 6,000 m and coastal plains that sit below sea level, the country's terrain offers both a wealth of riches and its fair share of challenges.

The list of Canada's natural resources is long: iron ore, nickel, zinc, copper, gold, lead, molybdenum, potash, diamonds, silver, coal, petroleum and natural gas to name a few.



Mine tailing core sample.

However, most of those riches are covered by millions of square kilometers of dirt, sand, silt, cobble, granite or ice – a fact that has made drilling for them all that more difficult.

Despite that, there are thousands of drilling projects on-going at any given time – primarily in response to a global economy that relies on Canada's harvested natural resources.



Dolomite lime core sample.



Placer gold core samples.

But, as old projects are completed, new searches for mineral resources must take place, often with only a 'best guess' to direct them.

Mineral exploration in unconsolidated material has always been a risky proposition due to the lack of an economical, versatile or accurate method of determining where to mine – at least that was the case until the development of the sonic drill head.



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Although the diamond drill has long been the preferred tool for mineral exploration in hard rock, in unconsolidated material, it has two unfortunate drawbacks. First, it does not drill well in unconsolidated materials and, secondly, it cannot provide accurate core samples from those kinds of rock 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 the patented sonic drill head, coring, in overburden material, can be performed as a completely dry process, producing core samples that range in diameter from 3-8 in. Cores can be obtained from a wide variety of mineral deposits including oil sands, slag piles, mine tailings and heap leach pads with a minimal amount of disturbance and compaction.

The samples are then extruded into clear plastic sleeves. 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 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.

In Canada, and in other countries where challenging terrain exists, the sonic drill has proved to be the much-anticipated tool that can help direct new exploration in the most efficient manner possible. Drilling three to five times faster (in unconsolidated material) than other drills and able to provide accurate, continuous core samples, the sonic drill has overcome the traditional hurdles to cost-effective mineral exploration in unconsolidated material.