

Instrumentation

GDD Inc.'s Beep Mat

Is prospecting dead?

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In the past century, prospectors discovered many mines while examining shorelines of lakes and streams (e.g. Noranda). Other major discoveries were made in rock cuts blasted for rail or road right of ways (e.g. Sullivan, Sudbury), and in rock exposures, for example in mountainous terrain (Gibraltar). Anything different in weight, colour (rusty zone), gold associated to quartz, etc., may have led to new discoveries. On average, it took many samples before discovering a showing, and many showings to find a mine. As the old saying goes, where there is smoke, there's fire. When one finds showings of gold, copper or nickel at surface, it has always been easier for the promoter to raise money to drill the extension to confirm the potential. It is still the case these days.

However, what about the current flow of discoveries and the future? Are the prospectors out of the loop? Are the prospectors still useful with all the new tools available to the exploration manager, such as airborne EM and magnetic surveys, geochemistry, the diamond drill, etc?

Let's have a quick look at some of the latest successes of Virginia Gold Mines Inc., a junior awarded the title "Prospector of the Year 2006" at the Prospectors and Developers Association of Canada (PDAC) convention in Toronto. The Bill Dennis Prospector of



The Beep Mat in action.



The essential gear.



The Beep Mat can be pulled over snow.

the Year Award recognizes finders of a significant mineral discovery. The PDAC honoured the Virginia Gold Mines Inc. team, represented by Andre Gaumont, Paul Archer, Alain Cayer, and Jean-Francois Ouellette, for the discovery of several gold deposits on the company's Eleonore property in the James Bay area of Quebec. Classical grassroots prospecting discovered a gold bearing float, which led to the mine. The main discovery, the Roberto zone, quickly developed into an important gold deposit. Roberto and the other gold deposits discovered by Virginia Gold are becoming Canada's newest gold camp.

To illustrate the role of prospecting for another of Virginia's discoveries let's quote Virginia staff:

"A rusty outcrop was discovered during a regional geological reconnaissance program. A ground follow-up identified a favourable geological context but bedrock assays revealed only geochemical high values. A Beep Mat crew followed up and identified nearby six conductive targets. Once dug out, two trenches revealed only barren sulphides but four revealed high-grade copper zinc ore. An airborne EM survey and a MaxMin survey were then run, followed by diamond drilling of the showings. In the course of the airborne EM follow up, the same Beep Mat crew managed in six weeks to explain twenty of the airborne EM targets identified by the airborne survey."

Paul Archer, V.P. Exploration, and the Virginia team: The Discovery of the Dom Showing

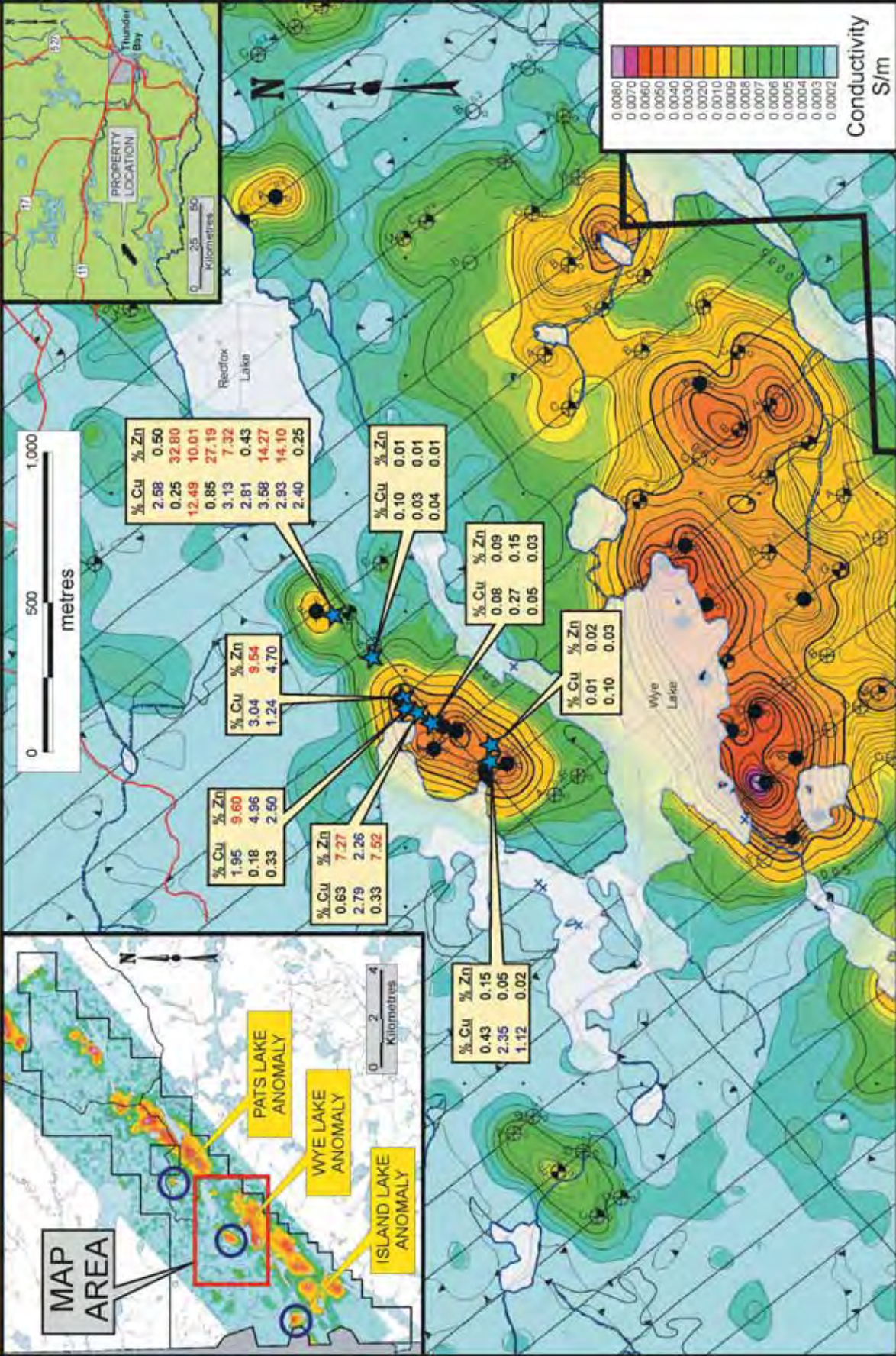
However, why is it that many other companies do not have the same rate of success, even when using the most sophisticated approaches to select among the millions of geo-scientific exploration targets? Let's begin by showing why the US Army and the Canadian managers of exploration may have similar field problems.

On artillery firing ranges in areas of glacial till, magnetic boulders are more common than live ammunition (or unexploded ordinance, UXO). The pulse EM systems used to detect the UXO also detect the magnetic floats, thus increasing the number of pits to dig. This made the life of army personnel miserable until they heard about the Beep Mat. Why is this so? A Beep Mat differentiates a conductor from a magnetic float and therefore it points out a limited number

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The VHMS mineralization was detected by the Beep Mat under one metre of snow and half to one metre of overburden, 20 kilometres from the nearest road.

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of areas where one will want to dig with precaution for live ammunition. Besides being conductive, an iron shell is also magnetic, and while the pulse EM detects both, only a Beep Mat shows which one is conductive.

When the exploration targets are the result of VTEM airborne surveys, which have recently become popular, the problem in some highly magnetic areas becomes identical to the problem of the US army. In our last field project, four out of five of the “conductors” were actually probable magnetic formations.

Even when testing bona fide conductors, mining explorers are not yet on safe ground. From our compilation, perhaps one in 10,000 wildcat DDH made to check a bedrock conductor intersects a mine. The reason is simple: copper or zinc ore bodies almost never

react to any EM survey if neither pyrrhotite or graphite are present. What is detected by the surveys are pyrrhotite layers or graphite beds, which only exceptionally occur in an ore body or adjacent to one. That is why prospecting until one finds some signs of ore raises tremendously the odds of a discovery for a given budget. In the 1950s, one seldom drilled a random airborne conductor unless a showing was already identified in its vicinity by prospectors (e.g. Texas Gulf, Thompson). Many more EM targets were thus first trenched and only the most promising ones were drilled.

Today the Beep Mat allows doing the same work even more efficiently. The latest Beep Mats can store 100 survey hours of data 10 times per second, and GPS position every second while being pulled behind a man, or an ATV at up to 25 km/hr. Thus, the exploration manager can compile every surface conductor that is easy to trench and blast at very low cost while saving the deeper ones for the diamond drill crew. As a bonus, once one gets some fresh samples of rich ore grade, the money will flow in easily for the diamond drill program to follow.

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For example, last winter Freewest discovered spectacular copper-zinc showings on its Sungold property, located approximately 120 kilometres west

of Thunder Bay in the Shebandowan greenstone belt of northwestern Ontario. The new discovery was made by prospectors, Richard Weenusk, Norbert Weenusk (Explorateurs-Innovateurs de Quebec inc.) and Daron Slaney during the course of a Beep Mat survey intended to follow-up on the results of the airborne geophysical survey. The VHMS mineralization was detected by the Beep Mat under one metre of snow and half to one metre of overburden, 20 kilometres from the nearest road. (See Sungold Property map on page 19.) As a result of the new discovery, Freewest has staked an additional 3,934 hectares (39.3 square kilometers) of prospective ground, for a total ground position at the Sungold property of 8,594 hectares (85.9 square kilometers).

When one finds showings of gold, copper or nickel at the surface, it has always been easier for the promoter to raise money to drill the extension to confirm the potential. It is still the case these days. Just think of Voisey Bay. Will history repeat itself? Some had argued that Voisey Bay was the last rusty orebody one could see from the surface. Virginia Gold's Eleonore puts that theory to rest.

For a given budget, the use of Beep Mats in summer or winter to scan large areas with a thin overburden will likely result in more showings with good assays than by using any other available technology. In Canada, on average, only 2% of bedrock is visible or not covered by sand, ice or water. Since 1900, just in the Quebec Province, close to 70% of the mines were found through showings within this 2% visible bedrock.

If most of the mines in Canada were found next to a surface showing, think of how many more Voisey Bay and Eleonore mines can be found with the help of prospectors using Beep Mats in areas where sometimes 40% of the bedrock is less than one meter below surface. Remember, the Geiger counter doubled the worldwide reserve of uranium in the mid-70s by founding new uranium mines in Canada. Let's keep prospecting and dreaming of the next big one! ■



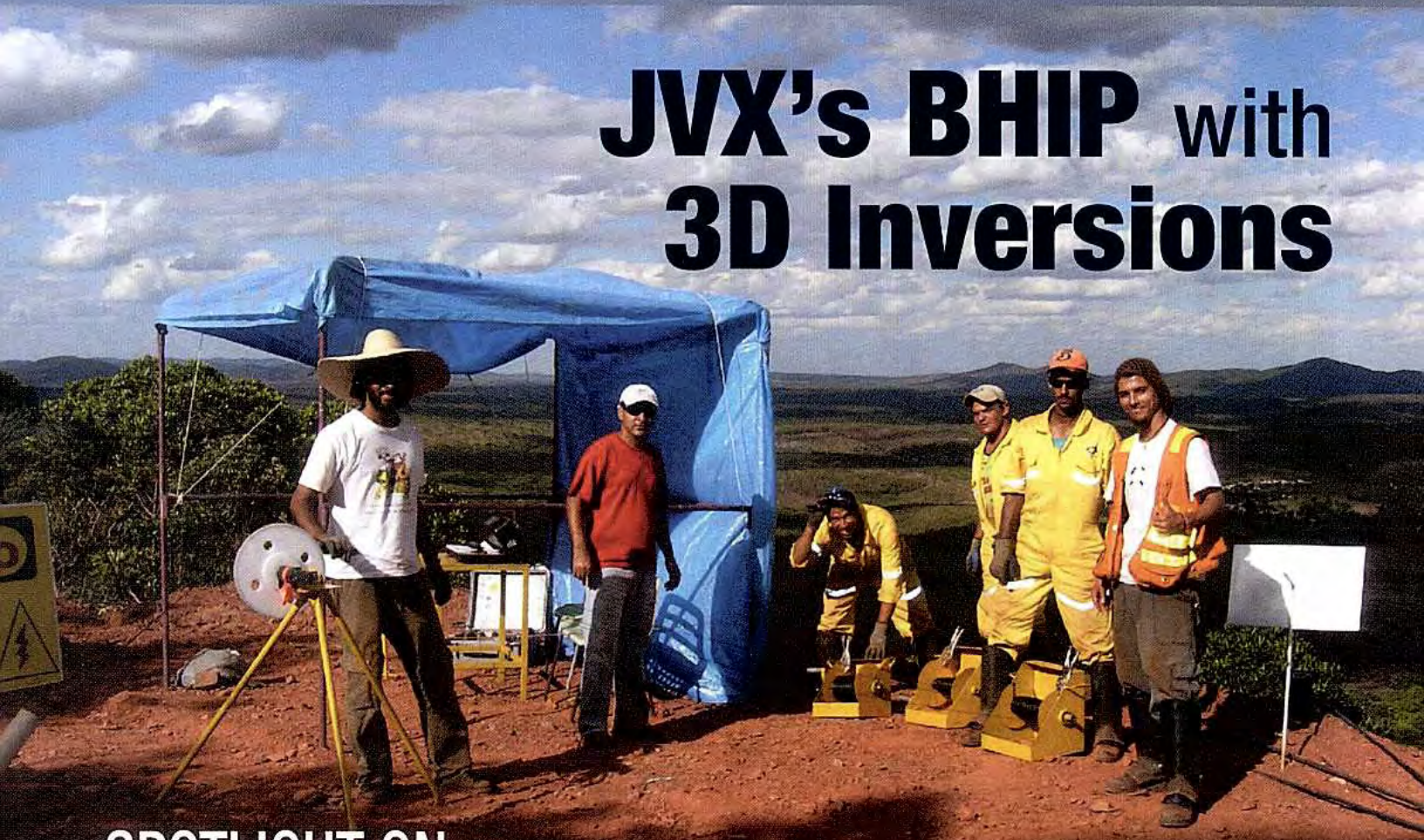
At the Dom discovery.

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JVX's BHIP with 3D Inversions



**SPOTLIGHT ON
DIAMONDS**

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Future Prospects
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THE BEEP MAT
from Instrumentation GDD Inc.