SAMPLING GRIDS FOR MMI™ GEOCHEMISTRY AND GREENFIELDS EXPLORATION

One of the most important steps in undertaking a successful soil geochemistry program is to design an appropriate grid for sampling. The grid density and its layout is determined by the type of deposit being sought. MMI™ (Mobile Metal Ion Geochemistry) can be of great assistance in delineating the surface expression of mineralization and accurately targeting initial drilling. Optimising the initial sampling layout requires some thought.

GREENFIELDS EXPLORATION WITH MMI™

Consider the search for a 200m x 200m soil anomaly within an area of 2km x 2km as an example. To delineate such an anomaly with reasonable accuracy you would need at least four samples within the anomaly, suggesting a 50m X 50m grid. A single pass survey of 2km x 2km at this sampling density requires 41x41 samples = 1681 samples in all. If the area is remote and / or access is difficult this is certainly an appropriate grid.

A simple way to economise, yet effectively cover the same area is to sample in two passes at different densities. This is the method the Chinese have used very effectively to become the number one producer of gold in the last ten years.

An initial pass at (say) 200m x 200m density will have one sample within the 200m x 200m footprint. A subsequent grid of 10 x 10 samples at 50m x 50m spacing centred on the original "hit" will outline fairly accurately the soil anomaly, as shown in the above diagram.

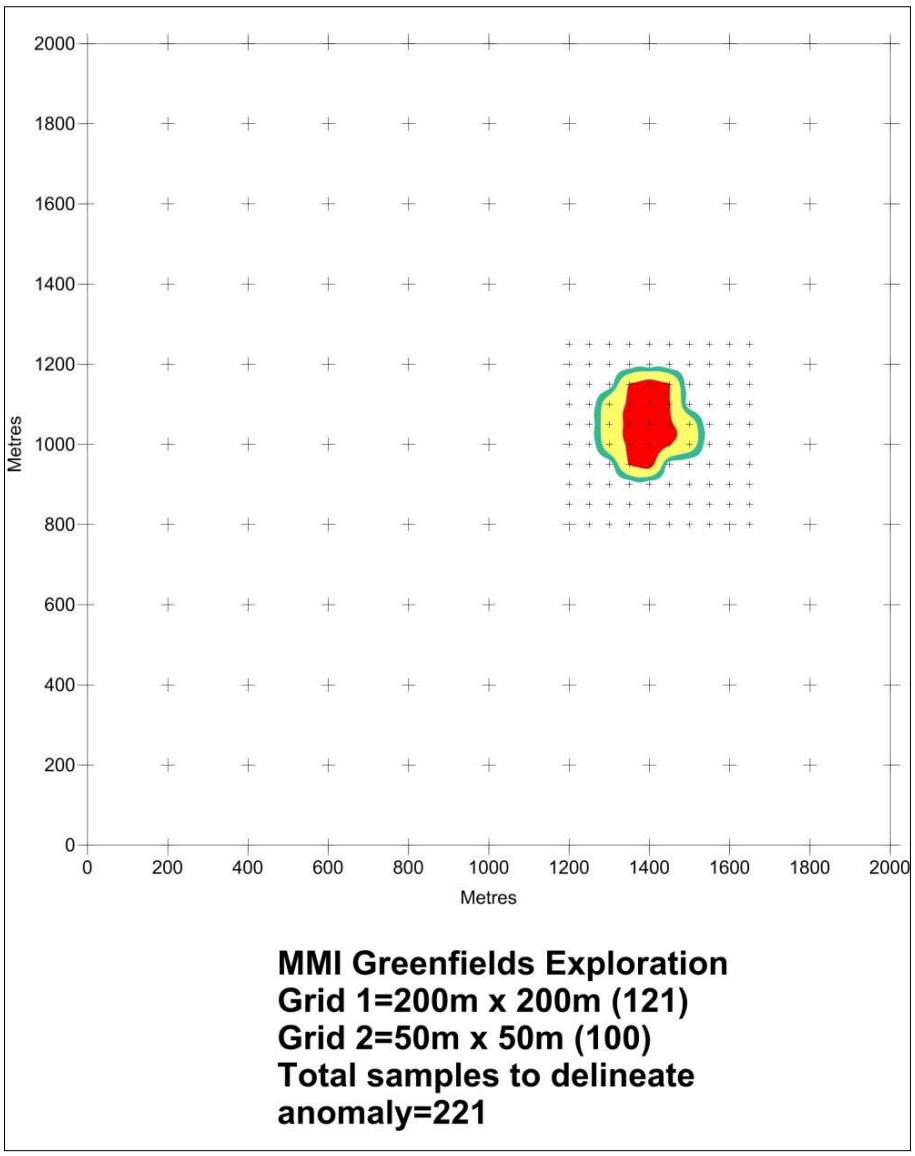

Figure 1: MMI™ Greenfields Exploration Grid

The total number of samples to delineate the anomaly is now 121+100=221, compared to the 1681 samples covering the total area at 50m x 50m spacing. The biggest cost saving is however yet to be realised…….. that of reducing the amount of drilling to intersect mineralisation.

PORPHYRY EXPLORATION WITH TWO PASSES OF MMI™

Low density grids are suitable for detection of large tonnage deposits such as porphyry systems. Zonation may also be useful in detecting outer lying parts of the system. Pb and Zn are elements which are often found distal to the Cu/Au core of porphyry deposit.

Following the example listed above of sampling in 2 stages at different densities, sampling density can be reduced by 80% to 90% in large tonnage deposits.
See Technical Bulletin TB25 for more details on sampling grids for various deposit styles.

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