EXECUTIVE SUMMARY

INTRODUCTION

Titan Distributed Array surveys were undertaken on the ***Gralheira Project*** by Quantec Geoscience Inc., between November 3rd and November 15th, 2004. The geophysical surveys included Tensor Magnetotelluric Resistivity (MT), which benefits from high resolution and deep penetration (>1-1.5km) and DC Resistivity & Induced Polarization (DCIP), which provides superior shallow to mid-depth penetration (<500-750m) and sensitivity to sulphides, from disseminated to massive. This report discusses and summarizes the interpretation of the Titan-24 survey data results obtained at ***Gralheira Grid***, using 2D MT and DCIP inversion modeling.

The Titan distributed acquisition system employs a combination of large array size, with a large multiplicity of sensors, as well as precise 24-bit digital sampling, with state of the art signal processing and 2D-3D computer-inversions, to help penetrate deeper than conventional mineral exploration surveys

The Titan-24 system provides three independent datasets capable of accurately measuring subsurface resistivities to depths in excess of one kilometer, and chargeabilities (mineralization) to depths of 500-750 metres. A total of 12.0 line-km of MT and DCIP were surveyed on four (4), 200-400m spaced, 2.4km long, north-south profiles and one (1) cross-line - roughly covering a 0.95 x 2.4km area.

SURVEY OBJECTIVES

The survey objectives of the TITAN-24 MT and DCIP surveys were to detect and define chargeability and related resistivity anomalies at depth below existing conventional geophysical and drilling (approximately 250m) along the ***Gralheira Shear Zone*** - a known, shear-hosted, Au-bearing, sulphide-mineralized quartz vein system, near the ***Jales Mine***, which produced 830,000 ounces of gold, at 12.9 g/T between 1933-1992. Secondary objectives were to provide possible drill targets related to satellite bodies and other potential vein systems, including the ***Campo Vein***, along a 2.4 x 2.4km survey area centered on the *Gralheira Shear.* The results of the survey were also to contribute to a better understanding of the local geology and geological structure.

RESULTS AND CONCLUSIONS

At present the exploration objectives have been favourably answered using the Titan-24 distributed acquisition survey technology and multi-parameter geophysical interpretation. In response to the survey objectives, the conclusions can be drawn:

- The Titan surveys identified as many as ***100*** separate DCIP and MT anomalies of varying significance, including ***50*** strong IP anomalies, that occur at depths ranging from near-surface to below 750m – closely associated with moderate DC and MT resistivity low anomalies, either coinciding with or lying at the roots of the IP anomalies. Nearly a third of these are directly explained in current diamond drilling along the *Gralheira Shear* – leaving the large majority, including ***12*** first priority targets, at depth below *Gralheira* as well as other adjacent features, which merit immediate drill testing.
- The Titan responses are dominated by high chargeability and low resistivity features, that best characterize net-textured to possibly stringer-like sulphides (or possibly graphite), or alternatively these could represent more fractured or clay-altered disseminated sulphide zones (or possibly even magnetite related). Nevertheless, these Titan responses are certainly consistent with sulphide rich, vein-gold deposits sought for at *Gralheira,* within 250-750m depths.
- The major Titan IP and MT targets lie along what are interpreted to be more than ***5***

east-west linear axes (***A,B,C,D,E***) that extend across all profiles, and are imaged to 350-500m depth and below. The linear pattern of these axes suggests that they are structurally controlled. These horizons appear deeply rooted, often extending to below 500-750m. These Titan chargeability high and resistivity low anomaly are always located inside the mica-schists or adjacent to the intrusive contacts – resistivities quickly climb and chargeabilities quickly fall within the granites.

- The *Gralheira Shear (**Zone A**)* hosts by far the more dominant DCIP and MT responses, which are all untested at depth. ***Zone A*** is also associated with smaller yet equally polarizeable, flanking secondary axes (***A', B')*** whose subcropping nature could be investigated using trenching. Adjacent to *Gralheira, **Zones B, C**, **D*** and ***E'*** often feature equally strong or larger/weaker IP anomalies, at depth, but are also more discontinuous along strike. At even greater depths, below 1km, the MT results suggest that a more strongly mineralized ore-zone or feeder system occurs the *Central Gralheira Shear*.

RECOMMENDATIONS

We have the following recommendations

a) ***27*** drillholes, totaling 19,000m, are recommended to the test the Titan anomalies (***Zones A-E***), starting with the **12** first priority holes.

b) The Titan results should be reconciled against the known geology, particularly with regards to confirming the possible source materials and explaining the 3 contrasting anomaly types.

c) The drill testing should be systematic, working from known geology to unknown, shallow to deeper targets, array center to outside, and from multi-parameter to single-parameter anomalies.

d) All subcropping Titan anomalies should be initially trenched to establish their mineral source.

e) Titan coverage should also be extended along strike, to the east and west, to close off deep MT anomalies and to map the strike-extension of the known axes.

f) If higher resolution is required, 50m dipoles should be opted for – possibly with current injections beyond the ends of the receiver array. If deeper chargeability is required, 200m stations and 4.8km Titan arrays are recommended.

g) All boreholes should be logged with petrophysics to establish the exact geologic source of Titan anomalies, and possibly transient electromagnetics.

h) Magnetic and gravity coverage, as well as 3D inversions should be seriously considered. A minimum 200m x 50m sampling is required for reasonable 3D density inversion; and 100m x 25m for the magnetics. The Titan results should then be reinterpreted in conjunction with the 3D inversions for a more complete interpretation.

i) The 3D Gocad common earth model should be queried for other parameters, such as alteration, assays, etc.