Geophysical Survey Interpretation Report
(Executive Summary)

On the TITAN-24 Tensor-Magnetotelluric and DC Resistivity & Induced Polarization Surveys GECO PROJECT (phase I & II), ON, Canada for: VISMAND EXPLORATION INC., Toronto, ON, Canada.

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January, 2006
Project GG364 & 380
EXECUTIVE SUMMARY

INTRODUCTION

The Geco project is located in the Geco Mining Camp, Thunder Bay District near Manitouwadge, Ontario Figure 1.

![Geco Project General Location Map]

The surveys were undertaken during two phases from February 4th to June 21st of 2005, over 43 survey days using the Titan-24 System. DC Resistivity, Induced Polarization, and Magnetotelluric Tensor Impedance were collected on 31 lines, spaced 250m apart, totaling 86.9-line km and covering approximately 22 square kilometers. The DCIP have been collected using a 2D pole-dipole configuration (transmit electrode located on same line as receivers).

The Titan 24 DAS system is a multi-channel, distributed-array data acquisition system, which record full-waveform time series for each geophysical event, enabling the application of sophisticated digital signal processing techniques, and assuring the best possible data quality. Titan 24 employs a combination of multiplicity of sensors, simultaneous 24-bit digital recording, signal processing, and 2D-inversion software, a powerful tool for exploration of massive and/or disseminate sulfide mineralization to depths of over 1km.

This Executive Summary Report presents a compilation from the “Geophysical Survey Interpretation Report” previously submitted to Vismand Exploration Inc.

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1 Project: QG364/QG380 "Geophysical Survey Interpretation Report on behalf of Vismand Exploration Inc." by E. Martinez, J. Donohue, E. Data & W. Quian, Jan.05.

SURVEY OBJECTIVES

The geological setting of the survey area is an extension of the area hosting the Geco, Willroy, Nama Creek and Willecho Mines, located approximately 5-30 km southeast, west and southwest of the property, respectively.

The ores of these deposits are basically Cu-Zn massive sulfides, and are located from the surface to depth greater than 2500m (e.g. Geco Mine is at least to the 2,850 level\(^2\)). The Geco Mines, closed in November 1995, produced 58.4 million tonnes of ore at grades of 1.86% copper, 3.45% zinc, 0.15% lead, and 50 g/t silver\(^3\).

To date, conventional geophysical techniques and drilling programs have been unable to identify further economic VMS mineralization. The Geco property has not been systematically drill tested at depth so it is considered potential still remains for deep mineralization. According to historic exploration data, several copper-zinc occurrences have been documented along the Geco horizon, host to the existing deposits, which further supports the property’s potential.

The primary objective of the Titan survey was to identify geophysical anomalies, which could represent volcanogenic massive sulphide (Cu-Zn) mineralization, particularly at depth, in a highly prospective area.

Interpretation of grounded source methods at Geco is made difficult by the presence of conductive lake-bottom sediment. The host bedrock below the lake-bottom sediments is generally resistive. Subsequently the over-parameterized inversions can produce spurious results around these high contrasting boundaries.

MINERALIZATION AND TARGET MODELS AT GECO

Mineralization at Geco is expected to occur either: a) within the felsic volcanics, b) at the upper contact of the felsic units with the overlying mafic volcanics or c) at the lower contact of the felsic units with the iron formation. Minor occurrences may also occur within the mafic volcanic series and mafic intrusives (see Figure 2).

![Figure 2: Idealized Titan 24 target model](image)

Most of the previous exploration, away from the deposits, appears to have been targeting idealized northeast regional mineralized trends projected from the Willecho, Nama Creek, and Willroy deposits.

\(^2\) http://www.mindat.org/loc-6771.html
\(^3\) http://www.vismand.com/geco.html

Deep copper-zinc occurrences and alteration zones within the felsic volcanic sequence have been identified close to these trends. The presence of anomalous Cu-Zn mineralization, and a geological model\(^4\) proposing potential for deep VMS mineralization provide an ideal environment for using Titan-24.

**DRILLHOLE DOCUMENTATION**

Approximately 960 holes have been documented at Geco to date. Some areas of the property have been subject to intensive drilling, particularly around the deposits and along the Geco Horizon in the west and southwest part of the survey grid.

Fewer drill holes are found to the east where the host horizon deepens, becoming too deep for commonly used surface electrical methods.

Several holes at Geco were drilled to depths of 1200-1600 m. Drilling results\(^5\), where available, have been incorporated into the Titan 2D cross-sections and plans.

**PREVIOUS GEOPHYSICS**

The total magnetic intensity (TMI) plan map over the property defines the gross geology and structures very well.

Some references indicate that the parts of the area were covered with seismic surveys. No data or detailed results of the survey were available.

Nine drill holes were surveyed with BHEM at Geco. During the summer of 1995, Noranda Mining & Exploration Inc had six drill holes surveyed with a 3-component probe and 8 channels Crone analogue receiver.

The objective of the BHEM was to further evaluate the base metal potential of the eastern extension of the Geco Mine stratigraphy with an emphasis on generating additional drill targets at depth below the last tier of drilling\(^6\).

**PROJECT RESULTS**

From the 2D inversion results, the potential targets occur along the felsic volcanics units (Geco horizon) and/or within the Iron Formation as depicted in the Gocad models\(^7\) (see Figure 3, Figure 4 and Figure 5). Some shallow anomalous zones appear to be related to the mafic volcanics and may represent secondary enrichment.

Drillhole data in the vicinity of several Titan anomalies show zinc and copper mineralization that is encouraging for VMS potential. Incorporating these areas with the available BHEM data, the interpretation has identified six anomalous Titan zones, four of which are considered potential targets (see Figure 6):


\(^6\) REPORT OF WORK "Geophysics - Bore Hole Pulse EM" (Noranda Mining & Exploration Inc., September 1995)

Figure 3: Gocad 3D View and Titan 2D MT Resistivity Inversion Results at Geco.

Figure 4: Gocad 3D View and Titan 2D DC Resistivity Inversion Results at Geco.
Figure 5: Gocad 3D View and Titan 2D Chargeability Inversion Results at Geco.

Figure 6: Interpretation Plan Map at Geco.
**Zone I.** This anomaly trend is observed in the southwest area of the grid, and strikes southeast from line LOE, 1900S to line L1000E, 2900S. It is observed at shallow depth, approximately 50m deep on line LOE, dipping to the north.

This zone is characterized by a strong IP response (>30mrads), and coincident low resistivity (<1000 ohm-metres) in the DC and MT models. The Nama Creek Deposit is on this trend (see Figure 7). The revised geological Gocad model indicates this zone is related to felsic volcanics and/or the Iron formation.

The 2D inversion models show the Nama Creek Deposit produces strong anomalies in the DC, IP & MT. These Titan responses from Nama Creek provide a useful benchmark for calibrating other anomalous responses identified in the data. The inversion models in this area provide a good representation of the known mineralization, providing confidence that the interpretation procedure is appropriate.

This area has been extensively explored in the past and future potential is limited, as there does not appear to be targets beyond the current drilling depths.

![Figure 7: Geosoft 2D DCIP & MT Sections. Zone I (L250E).](image)

**Zone II.** This zone is in the southwest and central part of the area, and strikes east from line LOE, 800S to Line L3250E, 1200N. This is a moderate to strong IP anomaly (15-25mrads) associated with low resistivity responses (<5000 Ohm-m) in the DC and MT.

Zone II is over 600 m deep and the anomaly amplitude, shape, and dimensions vary from line-to-line. The most promising area for this zone is observed between lines L1250E and L1750E.
near station 600S (see Figure 8). Geochemical results from surface samples close to this area indicate elevated Cu and Zn.

It appears, from the geological model, that this anomalous zone is closely associated with the base of felsic volcanics and/or the upper part of the Iron formation.

**Figure 8: Geosoft 2D DCIP & MT Sections, Zone II (L1500E).**

The drill hole database indicates that this feature has been partially tested to the west, WS-269, north, S99-429, and east, S-193. Intersections of hydrothermal alteration zones and massive mineralization are documented in the drill results.

During August 1999 Quantec Geoscience Inc conducted 3 Component BHEM surveys in holes S99-429 and S-193. The BHEM data from S193 (eastern end of the anomaly) show a strong response building towards the bottom of the hole indicating a source beyond the bottom of the hole. The 2D MT model of the rotated data for L3000E shows a low resistivity feature consistent with the BHEM results.

The BHEM data from S99-429 (north-central part of the anomaly) indicates a subtle off-hole anomaly at approximately 1130m depth superimposed on in-hole and edge responses where 4m of semi-massive sulphide mineralization (25% po, 10% py, 3% cpy, 3% sph) were intersected.

Modeling of the BHEM response puts the off-hole source as a 220S conductor south of the hole, which conflicts with the MT interpretation for L1500E.

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8 The figure depicts only a portion of the anomalous **Zone II** from L250E to line L750E.

The presence of sulphide mineralisation, BHEM, and MT anomalies makes this area interesting. It has been assigned a second priority target due to the amount of drilling previously undertaken.

**Zone III.** This anomaly is observed in the northwest of the survey area between lines L250E and LL2500E. It strikes northeast from line L250E, station 0N to Line L1250E, station 350N and between lines 1500E and L2500E changes strike attitude from northeast to east. It appears to plunge gently southeast and may be the up-dip portion of the Zone II anomaly as it does spatially correlate with the felsic volcanics in the Gocad model.

This is a moderate to strong IP feature (15-25mrads) associated with low resistivity responses (<5000 Ohm-m) in the DC and MT.

Few drill holes are documented in the area. WS-273 and WS-274 (approx. 900m deep) are located in the southwest portion of the anomaly; and WS-267 (app 1300m depth) is located in the north-central portion of the anomaly.

The most promising area is observed from lines L1250E to L2250E at approximately 300N where the anomaly amplitude in the MT model is stronger (see Figure 9) and remains untested.

This anomalous trend may represent sulphide mineralization or alteration within the felsic volcanics and/or the underlying Iron formation. It represents a first priority target.

*Figure 9: Geosoft 2D DCIP & MT Sections. Zone III (L1750E).*
**Zone IV.** Is observed in the central part of the survey with a northeast orientation spanning lines L3000E, station 200S to L4500E, station 200S.

This zone shows moderate to strong IP responses (15-30mrads) associated with DC and MT low resistivity signatures (<3000 Ohm-m) at depth, consistent with a sub-horizontal source as noted in the Gocad geological model.

This feature plunges east where the best portion of the anomaly in the MT models is observed at about 1000 m depth on line L3500E (see Figure 10).

Four drillholes (S-157, S-158, S-194 and S-195) are documented in the area; three of them were surveyed with BHEM, S-158, S-194 and S-195. The 3-component BHEM logs for S-194 show two major responses at approximately 800 m and 1300 m down hole.

The response at 800 m represents a moderate to strong small off-hole conductor. The multiple responses observed near 1300 m depth represent in-hole, edge, and off-hole responses of thin alternating conductive-resistive zones. A deep MT anomaly is observed adjacent to the hole.

Geochemical results for this hole indicate discrete intervals of Cu-Zn mineralization from 700 m to 1300 m, which might be associated with the BHEM and Titan anomalies. Borehole logs for hole S-195 show an edge response near 850 m depth, and a strong off-hole response near 1250 m depth down hole.

BHEM data for S-158 show a broad wavelength response, building strongly towards the bottom of the hole. This response suggests a conductor beyond the bottom of the hole consistent with the MT model for L3500E.

![Figure 10: Geosoft 2D DCIP & MT Sections, Zone IV (L3500E).](image-url)
From the geological sections and models, it appears the Titan anomalies between 700m and 1500m depth are associated with the felsic volcanics and/or the Iron formation, and the projected trend of the Willeco Horizon, which makes it an interesting area.

Between lines L3000E and L4750E, the area south of S-195 and north of S-158 remains under explored and there is enough space available for an economic VMS deposit. This zone represents a first priority target.

Geochemical results from surface samples (approximately 150m from L4250E, 300N) show elevated Cu and Zn and alteration, which is further encouragement towards the potential of this area.

**Zone V.** Is observed in the southeastern part of the survey area, and strikes northeast from line L5500E, station 100S to line L7000E, station 600N.

This zone is represented by a small area, discrete, and moderate amplitude (20-35mrad) IP anomaly associated with low resistivity in the DC and MT (<2000 ohm-metres).

It appears to be depth-limited, possibly dipping to the northeast. The best portion of the anomaly (coincident DCIP and MT responses) is observed from line L5750E to L6250E (see Figure 11), at a depth of approximately 300m.

The geological model suggests this zone is spatially associated with the upper part of the felsic volcanics or lower part of the mafic volcanics.

No drill holes are documented in this zone and it remains untested. This anomaly is a second priority target.

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**Figure 11: Geosoft 2D DCIP & MT Sections, Zone V (L6250E).**
Zone VI. This is an extensive zone located in the northern part of the survey area adjacent to Rabbit Skin Lake. It strikes northeast from line L2250E, station 1000N to about Line L6000E, station 1100N.

This zone is characterized by moderate IP response (15-25 mrad s) associated with moderate to low DC and MT resistivity responses (<6000 Ohm-metres). The nature of the anomaly, in the Titan models, and the large strike length suggests it may be the response to a fault zone or geological contact.

The most promising area within this zone (coincident DCIP and MT responses) is observed from line L2500E to about L3000E, at approximately 200 m depth (see Figure 129). The MT models indicate this anomaly has depth extent.

Few drillholes are documented in this area. S-197, in the east portion of the anomaly, (line L5000E at Station 850N) intercepted three intervals of Cu-Zn mineralization, from 325m to 350m, from 600m to 700m, and from 830m to 850m depths which may explaining the source of the responses. This zone represents a third priority target.

The figure depicts only a portion of the anomalous Zone VI from line L2250E to L4000E.

Figure 12: Geosoft 2D DCIP & MT Sections. Zone VI (L2500E).
CONCLUSIONS

The most significant Titan anomalies that represent potential drill targets at Geco are:

First priority Titan targets

1. Zone III (northwest of the survey grid) from line L250E, station 0N to L2500E, station 0N. Target line/station: L1750E/250N.

2. Zone IV (central part of the survey grid) from line L3000E, station 200S to L4500E, station 200S. Target line/station: L3500E/-200S and L4250E/-200S.

Second priority Titan targets

3. Zone II (southwest and central part of the survey grid) from line L0E, station -800S to L3250E, station 1200S. Target line/station: L1500E/-800S.

4. Zone IV (southeast of the survey grid) from line L5500E, station -100S to L7000E, station 600N. Target line/station: L6250E/500N.

Third priority Titan targets

5. Anomalous zone IV (north of the survey grid) from line L2250E, station 1000N to L6000E, station 1100N. Target line/station: L2500E/800N.

General Remarks

- The DCIP and MT data quality in general are good to excellent. The Titan-24 survey has demonstrated the capabilities of the system to map geological structure and delineate deep anomalous zones below 500m depth.

- The survey has detected six anomalous zones (Figure 13), correlating well with known mineralization documented in borehole logs and geological cross-sections (e.g. massive and semi-massive sulphide within felsic volcanics and/or Iron formation, etc).

- The deep anomalous zones may represent VMS (Cu-Zn) mineralization but more likely, alteration, as the zones are spatially extensive. The anomalous IP response at Geco varies between 10 and 50mrads (raw data). No other shallow anomalies were observed comparable in amplitude with the Nama Creek response.

- Generally, there is a good correlation between Titan anomalies and prospective geological horizons (felsic volcanics and Iron Formation). Both 2D DCIP or 2D MT inversions were affected by the presence of 2D and/or 3D structures, which run parallel and/or sub-parallel to the survey lines. No 3D inversions were carried out at this time.

- Several MT inversion models were produced using different inversion parameters, input data and starting models for the 2D PW inversions. Inversion models, along with the inversion logs are available in the “Geophysical Survey Interpretation Report” previously submitted.

- For unconstrained inversions only smooth DC resistivity and sharp IP chargeability are provided in the report. Smooth and sharp IP using half space (null) conductivity were also produced and the models that best fit the geology and correlate with the DC and MT are presented. Refer to “Geophysical Survey Interpretation Report” for other inversion models.


**Figure 13: Potential Drill Targets at Geco**

- DCIP and MT geologically constrained inversions models were produced for lines L250W to L1000E. No high priority targets were identified from the constrained inversions.

**RECOMMENDATIONS**

1. Test the *First priority Titan targets* numbered 1 & 2, and optionally test the *Second priority Titan targets* numbered 3 & 4.

2. Use 3-Component Borehole TEM surveys to help locate zones of high conductivity, which may exist within the broad zones of lower resistivity seen in the MT models.

3. Review all available data, especially geochemical and borehole EM, in the vicinity of the target areas identified in this report.

4. Construct a structural map to help determine if steeply dipping MT anomalies, which conflict with the attitude of the geological units, are responses to structure.

5. To better understand the Titan interpretation at Geco, other inversion models and the raw data available in the Logistics Report should be reviewed.
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January 2006