

## **Technical Information**

# Santo Tomás

#### **3D DCIP Geophysical Survey** Field work: September 1, 2020 to March 16, 2021

#### **Technical Disclosure**

JUNE 2021





TSX-V: OCO Frankfurt: OR6 U.S.: ORRCF

#### **Disclaimer**

The information and images contained in this presentation are based on data generated from the deep, three-dimensional, Induced Polarization ("DCIP") geophysical survey performed by Dias Geophysical, which is the subject of this presentation. The reader is cautioned that the DCIP data has received only initial processing, interpretation and consideration. Though all efforts have been made to present the data in a simple, accurate and representative manner, and to use only reasonable assumptions in drawing the opinions, observations and comments expressed herein, the Company offers no guarantees or warranties as to the accuracy of the data, the materials and images generated from it, or of the opinions, observations and comments. There is no guarantee of any correlation between the results of the DCIP and the grade and quantity of mineralization in the area of the DCIP. Further, the Company disclaims any intent to provide any updates or further disclosure of the results of any future processing and analysis of the data, or of any changes, revisions or developments to the opinions, observations and comments contained herein.

This presentation also contains references to a "2009 Grade Shell", as initially presented in the Company's Technical Report (the "Report"), entitled "Geology, Mineralization, and Exploration of the Santo Tomás Cu-(Mo-Au-Ag) Porphyry Deposit,", authored by D.A. Bridge, P. Geol. The potential quantity and grade of mineralization in the Grade Shell is conceptual in nature as it is based on results of historical drilling, and there has been insufficient current exploration to define a mineral resource or mineral reserve. It is uncertain if further exploration will result in the historical grade or quantities contained in the 2009 Grade Shell being confirmed. The reader is directed to SEDAR at www.sedar.com for the full Report, or to the Oroco website at www.orocoresourcecorp.com for further detail regarding historical work, and for other graphics representing the principal elements of the historical / geological resource work.

The information contained herein is presented as geological information only, and will be used only as a guide to follow-up technical work and for targeting of confirmation and exploration drilling. The reader is cautioned not to unduly rely upon the data, information, opinions, observations and comments presented herein due to the inherent uncertainties therein.

## Introduction

- The final survey report was received May 28 for a deep, three-dimensional, Induced Polarization ("DCIP") geophysical survey by Dias Geophysical of Saskatoon, Saskatchewan ("Dias"). The Company press released the receipt of the Survey Results on June 2<sup>nd</sup>, 2021.
- The deck is not considered to be comprehensive by the Company.
- The Santo Tomás Cu (-Mo-Au-Ag) porphyry deposit is associated with an intrusive complex of quartz monzonite porphyry stocks and dikes (K-Ar age • of 57.2 ± 1.2 Ma). The deposit is similar in age, host rocks and mineralization styles to other Laramide-age deposits of NW Mexico and the southwestern USA.
- The Santo Tomás deposit is mainly comprised of chalcopyrite, pyrite, and molybdenite sulphides with minor bornite, covellite, and chalcocite, which • occur as fracture fillings, veinlets, and fine disseminations. The mineral deposits and exploration targets occur as tabular NNE-NE trending, westdipping, mineralized intrusive complex of closely sub-parallel quartz monzonite porphyry dikes, hosted in strongly faulted hornfelsed andesite and meta-limestone.
- A massive meta-limestone unit caps the South zone and dips gently northward. The South zone unit correlates as the meta-limestones of the Santo • Tomás ridge, the North zone, and the valley floor at Brasiles zone. Mineralization is commonly below the base of the meta-limestone and blind to the surface.
- Historical exploration on the Property focused on those portions of the intrusive complex that crop out in an erosional window through the capping of meta-limestone. Notably, historical drill holes were arrayed mainly along the axis of visible exposures of mineralization. The historical drill holes did not test areas of blind mineralization beneath massive meta-limestone, talus, and post-mineralization Sierra Madre Occidental volcanics.
- The DIAS Geophysical DCIP system's novel design has enabled surveying of rugged areas that are not otherwise accessible for conventional induced  $\bullet$ polarization systems. The new 3D DCIP survey provides chargeability data helpful in modelling the volumetrically common sulphides, pyrite and chalcopyrite. Chargeability responses of greater than 15.8 mV/V enclose the drilled-defined North and South zone deposits and extend well beyond in areas blind to surface. Responses greater than 40 mV/V are extensive.

## **Introduction (cont'd)**

- Drilling data indicates that Resistivity data reliably maps multiple lithologies, including high-resistivity limestone and rhyolite and low-resistivity phyllic-altered, sulphide-mineralized units. The Dias DCIP design provides coverage to a very significant depth below the base of the meta-limestone blanket, facilitating drill targeting of extensive areas blind to surface in the South, North and Brasiles zones.
- Based on the additional evidence of the DCIP survey, the core of the mineralized intrusive complex exposures and inferred trend spans a distance of at least 5 km by a width of 1-3 km, although its total extent is not presently known and remains open on its western fringe, its NE extremity, and to depth.
- The cumulative results of the Dias Geophysical 3D DCIP survey represent the beginning of a new generation of advanced exploration of the Santo Tomás deposit. The final 3D models of Resistivity and Chargeability have a mesh size of 25 m by 25 m. This mesh size is appropriate and closely matches historical drilling data, when available. Confident targeting of the next generation of exploration and mineral resource definition drilling is now feasible.
- Notwithstanding the exceptional results of the May 28 final report by Dias Geophysical, the Company plans to integrate the DCIP data with data from the pending delivery of Terraquest's helicopter magnetics survey, gamma-ray spectrometer and VLFEM survey. Results from ongoing geological structural mapping will be included in the near future.

#### **About the DCIP Survey:**

- The Dias Geophysical DCIP survey was completed using the DIAS32 system with common voltage referencing. The receiver electrode spacing was 100 m on lines separated by 200 m. The current injection spacing was 200 m along lines that extended between the receiver lines. From 1 to 4 current injections were added to the ends of the lines to increase depth coverage near the ends of the survey grid. The survey was completed as a roll-along 3D array with a total of four receiver-lines active for each current injection for a total of approximately 100 active receivers for each current injection.
- A total of 714,887 pole-dipole data records were processed and delivered from a total data set of over 2 million data points. Dipoles ranged in size from 100 m to 850 m, and the orientation of the dipoles ranged across all azimuths. Unconstrained 3D inversions of the final Resistivity and chargeability data were generated using the SimPEG tensor mesh 3D DCIP code. The final 3D models of Resistivity and chargeability have a mesh size of 25 m by 25 m by 25 m.

### June 2, 2021 News Release Figures (1 & 2)



Figure 1. Location of the geophysical



#### June 2, 2021 News Release Figure 3



Santo Tomas 3D DCIP Model Chargeability Looking SW Figure 3

Gradeshell

Cu > 0.3 % Note to the reader: The copper Gradeshell (Cu > 0.3%) in Red is provided in the figure as a visual cue to help locate the historical North zone resources

> North zone @ 100 m Elevation

> > 1 km

## **Survey Statistics & Station Locations**

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#### **DIAS32 3D DCIP Survey**

- The geophysical program carried out by Dias Geophysical Limited was designed to detect the electrical resistivity and chargeability signatures associated with potential targets of interest. This was achieved using the DIAS32 acquisition system in conjunction with one of Dias' proprietary GS5000 transmitters. The survey was completed using a rolling distributed partial 3D DCIP array and a distributed 2D distributed array, both with a poledipole configuration and with common voltage referencing (refer to the 'Current Remote' location, adjacent figure). The full survey covered an area spanning approximately 14.4 km<sup>2</sup>.
- The geophysical program was carried out in two phases, a first phase spanning from September 1, 2020 until December 5, 2020, and a second phase carried out between February 10, 2021 and March 16, 2021.

Location of 3D DCIP transmitter (Tx) and receiver (Rx) stations, and of the remote common voltage reference electrodes station



### **Survey Statistics & Station Locations**

- The receiver electrode spacing was 100 m on lines separated by 200 m. The current injection spacing was 200 m along lines that extended between the receiver lines. From 1 to 4 current injections were added to the ends of the lines to increase depth coverage near the ends of the survey grid. The survey was completed as a roll-along 3D array with a total of four receiver-lines active for each current injection for a total of approximately 100 active receivers for each current injection.
- At the Santo Tomás grid, for each injection with up to 4 active receiver lines, approximately 2000 receiver dipoles were generated, yielding a final dataset with 714,887 pole-dipole data points over the entire grid. For the Santo Tomás Project, a total of 439 current injections were carried out, including 18 double injections.
- A total of 714,887 pole-dipole data records were processed and delivered from a total data set of over 2 million data points. Dipoles ranged in size from 100 m to 850 m, and the orientation of the dipoles ranged across all azimuths. Unconstrained 3D inversions of the final Resistivity and chargeability data were generated using the SimPEG tensor mesh 3D DCIP code (version 2.0 https://www.simpeg.xyz/). The final 3D models of Resistivity and Chargeability have a mesh size of 25 m by 25 m by 25 m.
- The IP inversions were initially carried out with a full integration window (40-1920ms), though it was subsequently decided to use a shorted shortened (480-1120ms) integration window (affecting the data presented here).
- The Company presently regards Chargeability values of > 15.8mV/V to represent materials of target interest: this assessment is derived from observed (empirical) correlation between historical results and chargeability and will be refined with exploration and drilling, and from other surveys in comparable metallogenic setting: survey interpretation will be improved through further constrained modeling and calibration against further empirical observations / characterization of geology, mineralization and alteration. Integration with all aspects of project discovery will be ongoing through the project. Location of 3D DCIP transmitter (Tx) and

receiver (Rx) stations



## **Select Observations / Comments**

- Chargeability results as expressed at surface are observed by draping the shallow Chargeability responses on the Santo Tomás orthophoto model to illustrate the surface 1. and immediate subsurface character. Notably the South, North and Brasiles zone surface responses correspond to known mineralization and gossans. Areas of low Chargeability on the ridge tops are meta-limestone and SMO volcanic rocks.
- Various stepped plan and level plan views of the 3D Chargeability model have been generated. A 600 m elevation slice of the model illustrates that South zone responses 2. connect below the meta-limestone cap of the South zone. The North zone is better presented at lower elevation plan slices: a 100 m elevation slice demonstrates a strong connection between the North and Brasiles zones, and indicates an increase in the width of the response to depth.
- The South zone survey was extended eastward to close off a large Chargeability anomaly extending under the meta-limestone cap of the Santo Tomás ridge. With the 3. eastern extension, the Chargeability anomaly (> 15.8mV/V) is mapped as 2.0 km by 2.0 km, with the best historical drill results correlating with the fringe of 40 mV/V responses. The extension anomaly is proximal to the main Santo Tomás access road.
- South zone and North zone DCIP responses do not connect, reflecting a different deposit geometry in the South zone. South zone responses are progressively deeper 4. towards the east and weaken to the north, in contrast to the responses in North and Brasiles zones that dip westward.
- The North zone DCIP responses are better visualized in relation to the geological model of the 2009 Grade Shell of Cu > 0.30%, as described in the Technical Report by 5. Bridge (2020). That grade shell model encloses about 300 million tonnes above 100 m elevation to the surface and is interpreted as the core of the North zone deposit. It is presented in many of the presented figures for size reference.
- The western limit of the 2009 Grade Shell of Cu > 0.30% is arbitrary, as there is sparse drilling data under the meta-limestone cap. Strong Chargeability responses occur in a 6. band extending westward of the Grade Shell for 400 m wide, approach near-surface on that fringe, in contrast to earlier geological modelling. The opportunity for very significant additional tonnage will be targeted by drilling in this apparently west-dipping western extension at the North zone.
- The 2009 Grade Shell of Cu > 0.30% extends downwards to only the 100 m elevation. No deposit tonnage is modelled below that elevation, yet the strong chargeability 7. anomaly extends to depth, and is open below the 700 m depth limit of investigation of the DCIP survey.
- Similar to South zone, the best (historically) known North zone mineralization lies on the fringe of a distinctive +40 mV/V Chargeability response. The +40 mV/V response 8. possibly reflects more abundant pyrite in the footwall of the North zone.
- 9. Brasiles zone demonstrates a northeastern extension of the North zone. Firstly, a distinct, west-dipping high Chargeablity anomaly has a similar character to the North zone, except in Brasiles it is co-incident with a low-resistivity response. The Resistivity response is best developed at depth, possibly indicating a change in alteration intensity with depth. Surface expressions of the Brasiles zone contain hornfelsed andesite, clay-sericite altered andesite (?) and some quartz monzonite dikes.
- 10. A Brasiles zone Chargeability response occurs to the west of the central North zone Brasiles axis: this feature is thought to indicate a potential for:
  - a) a mineralized zone hosted in a vertical zone penetrating the entire 200 m thickness of the meta-limestone and
  - b) a broad moderate chargeability high, indicative an intrusive hosted target at depth.

#### 600m Elevation Plan of Chargeability & Resistivity





#### 400m Elevation Plan of Chargeability & Resistivity





### Introduction



















![](_page_19_Figure_1.jpeg)

![](_page_20_Figure_1.jpeg)

![](_page_21_Figure_1.jpeg)

![](_page_22_Figure_1.jpeg)

![](_page_23_Figure_1.jpeg)

![](_page_24_Figure_1.jpeg)

#### **Selected Chargeabilty Section – Brasiles zone, Az 110°**

![](_page_25_Figure_1.jpeg)

## **Selected Chargeabilty Section – Brasiles zone, Az 110°**

#### **Brasiles**

Showing known surface gossan expression (eastern anomaly, comes to surface at drill hole collar 65), and blind western target below overlying limestone and volcanogenic units

The Chargeability features also appear to 'intrude' the overlying low-chargeability features, and may correlate with mineralised occurrences, possibly including contact skarns that have been observed at surface

![](_page_26_Figure_4.jpeg)

## Scaled Schematic - +16.1mV/V

#### **Chargeability at Santo Tomás:**

Section through the Santo Tomás +16.1mV/V chargeability shell cut in plan section dipping 9 degrees on 020 degrees azimuth.

![](_page_27_Picture_3.jpeg)

NYC (Lower Manhatten) 3D Model by Community District at: https://www1.nyc.gov/site/planning/data-maps/open-data/dwn-nyc-3d-model-download.page

## 600m elev. Chargeability vs Chargeability on 020° Section dipping 9°

![](_page_28_Figure_1.jpeg)

**Chargeability at Santo Tomás:** Planar section through the Santo Tomás +16.1mV/V chargeability shell cut in plan section dipping 9 degrees on 020 degrees azimuth, starting at elevation 600m at south boundary of the DCIP survey.

![](_page_28_Figure_3.jpeg)

#### Long Sections – North oriented, viewed from West

#### **Chargeability at Santo Tomás:**

Longitudinal cross sections through the Santo Tomás +16.1mV/V Chargeability – sections oriented to the north and viewed from west looking east, sections separated by 200m.

Illustrates westerly dip of the historical grade shell, coherent with Chargeability, and illustrates high (+44mV/V) feature east of the historical grade shell.

Chargeability shows substantial development below the 0.3% gradeshell and extended westward (i.e. from upper section through lower section.

The 'blind' chargeability feature at west Brasiles is visible to the North (left) side of the sections.

Locally, as in section 778,100m E, chargeable units appear within the overlying meta-limestone / volcanogenic units: locally these may correlate with contact skarns that have been observed during preliminary field mapping (see "X")

![](_page_29_Figure_7.jpeg)

## **Grid Extensions**

Grid extensions to the NE and SE were added to better constrain and vector continuing Chargeability feature trends observed while the survey was in progress

![](_page_30_Picture_2.jpeg)

![](_page_31_Picture_0.jpeg)

#### Brasiles gossan

and a strength of the state of the

![](_page_31_Picture_2.jpeg)

#### (northern) South zone

South zone (south of image)

State State

#### **Prospect images**

Brasiles gossan zone showing original road development and drill pads. Oroco does not have records from prior drilling at Brasiles

![](_page_32_Picture_2.jpeg)

![](_page_32_Picture_3.jpeg)

Brasiles gossan zone (right of picture) developed southwestward into the southerly developed bluff, where pre-mineral limestones and volcanogenic units overlie the Brasiles 'blind' targets

North zone – showing outcropping zone overlain by older pre-mineral limestone and volcanic units. The main access road with switch-backs represents principal project access

#### Santo Tomás Project – South, North and Brasiles zones

![](_page_33_Picture_1.jpeg)

![](_page_33_Figure_2.jpeg)

![](_page_33_Picture_3.jpeg)

![](_page_34_Picture_0.jpeg)

# Developing the **Santo Tomás** PORPHYRY COPPER PROJECT

#### **TECHNICAL MATERIALS DECK**

JUNE 2021

![](_page_34_Picture_4.jpeg)

![](_page_34_Picture_5.jpeg)

TSX-V: OCO Frankfurt: OR6 U.S.: ORRCF