

GOLD AND SULFIDE TARGETING USING ADROK'S ATOMIC DIELECTRIC RESONANCE (ADR) TECHNIQUE

CITIGOLD required a technique to resolve a set of complex but non-unique mineral exploration and targeting problems.

AIM:

To locate small (<50 x 50m) areas of high grade gold mineralisation hosted within a set of semi-predictable and semi-continuous fractures within granitic host rocks (FIG. 1).

SOME EXPLORATION CHALLENGES:

- 1) Mineralization is located directly beneath the city of Charters Towers thereby limiting the use of conventional drilling and other traditional geophysical techniques such as magnetics, gravity, IP, TEM, MT, Seismic reflection..
- 2) The depth to mineralization is 400m to over 1500m.
- 3) Drilling is extremely slow and expensive and there is a lack of drill pad sites within the city.
- 4) The local granite is extremely hard resulting in an average drilling advance of 30-40m/day), using conventional diamond drilling

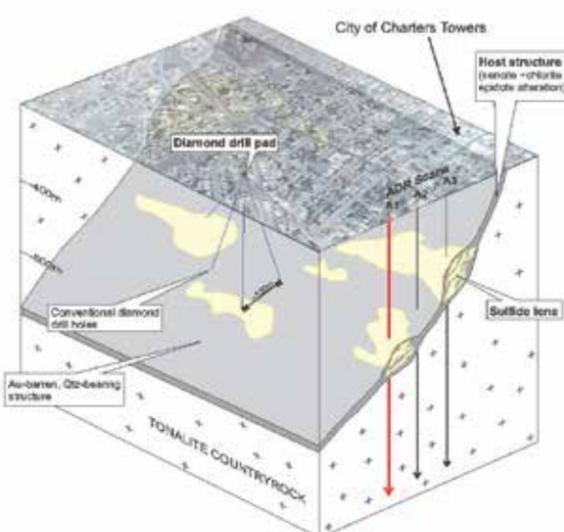


FIGURE 1. Schematic block diagram illustrating the style of mineralisation characterising the Charters Towers Goldfield. Mineralisation is "narrow-vein" style and occurs as small but very high grade pods and lenses hosted within semi-continuous, planar or NE-dipping dilatant fractures.

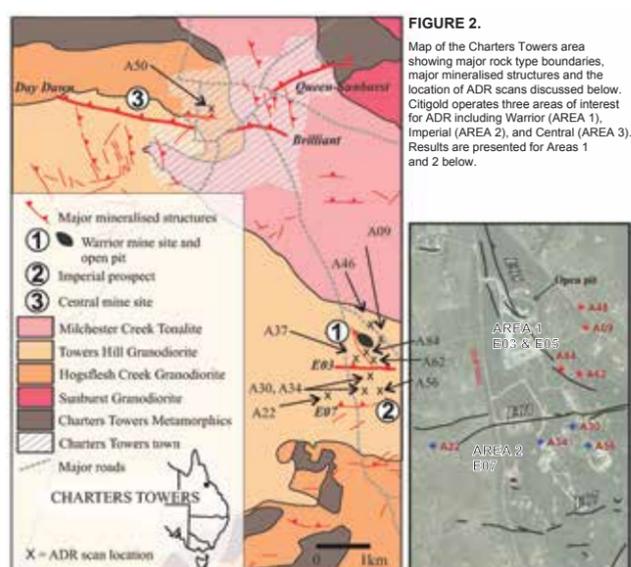


FIGURE 2. Map of the Charters Towers area showing major rock type boundaries, major mineralised structures and the location of ADR scans discussed below. Citigold operates three areas of interest for ADR including Warrior (AREA 1), Imperial (AREA 2), and Central (AREA 3). Results are presented for Areas 1 and 2 below.

GEOLOGICAL CONTEXT

- Mineralization is classified as "narrow vein" type as it is hosted within N- or NE-dipping, quartz-bearing dilatant fractures.
- Gold occurs with other sulfide phases including Galena (PbS), Pyrite (FeS₂), Sphalerite ((Zn,Fe)S).
- High lead (Galena) grades equate to high gold sulfide and gold-rich layers within the host fractures are typically less than 30cm thick.
- Gold and sulfides occur as lenses or "pods" within the host fracture zone.
- Fractures are up to 10 m thick but average 1-2m thick.
- The host rock is tonalite or granodiorite with quartz, sulfides, and carbonate as well as numerous cross-cutting basalt, intermediate and felsic dykes.
- The host rock is tonalite or granodiorite with
- Sulfides, quartz and low-grade gold (<1 - 5 m.g/t) are typically found within most of the fracture zone, however, high grade gold and sulfide lenses (incl. quartz) are typically small (<100m in longest dimension) but exhibit high gold grades in excess of ~30 m.g/t Au.
- The structural controls on the location of high-grade gold mineralization are extremely complex and previous drilling/exploration has been carried out via inefficient diamond drilling

RESULTS AREA 1

1 SUCCESSFUL IMAGING OF THE E05 STRUCTURE - test scan

Results presented below are from scan A09 which was completed parallel to existing diamond drill hole CT772. The geology and assay data from the diamond drill hole were provided to ADROK prior to completion of the data processing.

ADR RESULTS
A09 ELOG
Intercept (E05)
Qtz + sulfides
-182m

CT772 ASSAY RESULTS
CT772 Au (ppm)
CT772 Pb (ppm)
-175.2m

Scan A09 - Trial scan completed after geology and assay data had been provided to ADROK
Parallel diamond drill hole CT772
Maximum quartz-sulfide vein thickness - 10cm
Intercept depth 175.2-175.35m
Au grade at intercept - 34 g/t Au (ppm)
Pb grade at intercept - 10200 g/t Pb (ppm)
ADR Anomaly depth - 182m
DEPTH ERROR = 6.7m

2 SUCCESSFUL IMAGING OF THE E03 STRUCTURE

Results presented below are from scans A67 and A84 completed to the north of the Warrior mine site and aimed at pinpointing sulfides where existing drilling had proven mineralization but results were not provided to ADROK. Both scans successfully pinpointed mineralisation on the E03 structure.

ADR SCAN A84
Diamond drill hole CT3067 in known area of sulfide mineralisation.
Maximum quartz-sulfide vein thickness - 40cm
Mineralisation depth 365m (from existing mining)
Expected mineralisation from structural interpretations is 390m
ADR Anomaly depth - 378m
DEPTH ERROR = +/-13m

ADR SCAN A67
Expected mineralisation from structural interpretations is 340
ADR anomaly depth is 343m
DEPTH ERROR = +3m

ADR RESULTS
A67 ELOG
A84 ELOG
E03
unknown
E03
-343m
-378m

Diamond drill core from hole drilled parallel to the orebody from underground. The orezone contains gold, sulfides, quartz and carbonate and is approximately 40cm thick.

RESULTS AREA 2

3 SUCCESSFUL IMAGING OF THE E07 STRUCTURE

Results presented below are from scan A56 which presented an anomaly at -469m. Drilling of diamond drill hole CT8205 was completed after the ADR results were acquired. Drilling proved that gold and sulfide mineralization lie on the E07 structure at this depth.

ADR RESULTS
A56 ELOG
-469m

CT8205 ASSAY RESULTS
CT8205 Au (ppm)
CT8205 Pb (ppm)
-463m

Scan A54 - Scan completed prior to drilling of parallel diamond drill hole CT8205
Parallel diamond drill hole CT8205
Maximum quartz-sulfide vein thickness - 35cm
Intercept depth 462.93 - 463.31
Au grade at intercept - 37.9 g/t Au (ppm)
Pb grade at intercept - 7200 g/t Pb (ppm)
ADR Anomaly depth - 469m
DEPTH ERROR = 6m

4 SUCCESSFUL IMAGING OF THE E07 STRUCTURE

Results presented below are from scan A30 which presented an anomaly at -510m. Assays and drill core from diamond drill hole CT8204 proved that gold and sulfide mineralization lie on the E07 structure at this depth. A second smaller anomaly at 608m was detected in the ADR, however, the correlation between this anomaly and the newly identified footwall structure in E07 has not yet been established.

ADR RESULTS
A30 ELOG
-510m

CT8204 ASSAY RESULTS
CT8204 Au (ppm)
CT8204 Pb (ppm)
E07 - 515m
-581m
-515m
-581m

Scan A30 - Scan completed prior to drilling of parallel drill hole CT8204.
Parallel diamond drill hole CT8204
Maximum quartz-sulfide vein thickness - 20cm
Intercept depth 514.68-515
Au grade at intercept - 1.27 g/t Au (ppm)
Pb grade at intercept - 173 g/t Pb (ppm)
ADR Anomaly depth - 510m
DEPTH ERROR = 5m

Intercept depth 581-581.65
Au grade at intercept - 1.97g/t Au (ppm)

CT8204 - 414.3m E07
CT8204 - 589.7m

BENEFITS FOR CITIGOLD

- FAST DATA ACQUISITION** - Acquisition of over 60 individual scans occurred within a few weeks.
- FAST PROCESSING** - Data processing and return of results occurred within a few months.
- TARGET ACQUISITION** - All ADR scans presented an anomaly at the target structure.
- CONFIDENT DEPTH ESTIMATES** - Anomalies were within 13m of drilled or inferred target depth.
- VERY LOW IMPACT** - Very little to no environmental or social impact.

PROJECT OUTCOMES

- In every case, the ADR technique identified the target structure. Drilling of one of the targets resulted in a significant intercept of 37.9 g/t Au.
- Up to approximately 20m in position error between the ADR response and the physical structure was recorded. The average difference is, however, only around 5m.
- No absolute measurement can be used to estimate/infer the grade of the rock at the point of intercept (at this stage).
- Diamond drilling after anomalies were identified in ADR proved that the ADR is precise in determining where and how many major structures are present in a vertical profile.