Downhole Geophysics Surprises at Woodlawn

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Lachlan Fold Belt – late Silurian felsic volcanics
Deposit comprises one large and several smaller lenses of polymetallic Pb-Zn-Ag massive sulphides with an associated zone of copper mineralisation.
Other VHMS include Captains Flat and Wilga, both South of Woodlawn.

Historical production 13.4 Mt of high grade zinc, lead and copper ore.

Indicated current JORC Resource of 8.6 Mt @ 10.3% Zn, 4.0% Pb, 1.8% Cu, 84 g/t Ag and 0.5 g/t Au

1.5 Mt inferred JORC Resources @ 9.6% Zn, 4.1% Pb, 1.7% Cu, 87 g/t Ag and 0.6 g/t Au
Geophysics and VHMS

- Wilga, Currawong, Que River, Hellyer, Dry River South and Woodlawn all relied heavily on geophysics.
- Geophysics worldwide has played a large role in VHMS.
- Good deposits to target because ‘keep on giving’
- Polymetallic so naturally hedged
- Roseberry keeps finding new lenses after 75 years of mining – mine recently extended to 25 years
- Kidd Creek
<table>
<thead>
<tr>
<th>Geophysical Method</th>
<th>Nature of geophysical response</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetics air&amp;ground</td>
<td>❌</td>
<td>Ore is non-magnetic. Deposit is actually located in an area of weak reverse magnetism</td>
</tr>
<tr>
<td>Gravity</td>
<td>✓</td>
<td>1mGal response BUT this anomaly would disappear if the deposit was 80m deeper. The mafics are dense = bigger response than ore</td>
</tr>
<tr>
<td>Ground EM</td>
<td>✓ ✓ ✓</td>
<td>Good strong response to the shallow minz. Black shales always a problem i.e. small loop EM may be more effective. EM found the nearby Montrose deposit</td>
</tr>
<tr>
<td>SP&amp;Resistivity</td>
<td>✓ ✓ ✓</td>
<td>Simple, strong response which closely outlined the shallow massive sulphides</td>
</tr>
<tr>
<td>Airborne EM</td>
<td>✓ ✓ ✓</td>
<td>Dighem showed a strong-ish complex anomaly…..modern AEM would give better results. Black shales always a problem</td>
</tr>
<tr>
<td>DHEM</td>
<td>✓ ✓</td>
<td>Some ore lenses are conductive – others are quite low conductivity. Coil or Bfield probe??</td>
</tr>
<tr>
<td>DHMMR</td>
<td>?</td>
<td>Never tried however could be very useful.</td>
</tr>
<tr>
<td>IP/MIP</td>
<td>✓ ✓</td>
<td>Complex responses due to fw pyritic black shales. IP response ore = IP response black shales also.</td>
</tr>
</tbody>
</table>
Ore lenses plunge to the WNW at 70°. Mineralisation about 75% total sulphides - pyrite, sphalerite, galena and chalcopyrite in decreasing order of abundance.

Current exploration program

Find deeper extensions to the underground lenses

The Woodlawn drillhole WLDT012 was drilled by TriAusMin Ltd targeting the C ore lens.
DHEM operation

- Primary B field
- Transmitter loop
- Secondary B field
- DHEM-Rx
- Induced currents
The loop locations were constrained by the tailings dams and open cut.

Primary loop, Loop1, was designed to optimally couple with the target.

Loop2 was designed to be approximately null coupled with the target.

Two loops means a) mineralisation in all orientations is energised and b) more data for better models i.e. less bad drillholes.
Exploration 2012: Targetting deep extensions to C lens

- **I Lens**: Intersected 438 to 453 m, very weak base metals sulphide
- **J Lens**: Possibly intersected from 804 to 808 m, 4 m at 3% Cu!
- **C Lens**: In-hole from about 890 to 950 m as base metal sulfide veins/stringers, most abundant sulphides 900 to 940 m.
DHEM Results

Barren sulfides

Strong edge of lens intersection response

Weak intersection response

C-lens?

Graphs showing EM response at various depths and stations.
Strong intersection response J-lens

Weak intersection response C-lens

Clear offhole response...???
lens???

Northwest

Southeast

Scale

200m
Lots of previous drilling
Best fit model:
125x125m
Dip ~60°
Depth to top 280m
Strike 345°
Conductance 150S

Not high conductance – moderate conductance as we expect for Pb-Zn-Cu VHMS.....

Looks promising
View looking along strike (cross section) showing position of surprise conductor. Despite appearances, no holes have passed through this area.
Perspective of the DHEM models showing the close correlation between the mineralisation intersection in WU059 and the ‘surprise conductor’

Total potential tonnage = 0.5Mt

WLTD015 intersected 32m @ 1.8% Cu, 1.2%Pb, 4.6%Zn including 9m at 4% Pb, 16% Zn, 52 g/t Ag, 0.8g/t Au.
Woodlawn Underground Mining Projects
Selected 2012 & 2013 Drilling Intercepts

New High Grade Lenses
&
Extensions To Existing Lenses

<table>
<thead>
<tr>
<th>Metres @</th>
<th>Cu</th>
<th>Pb</th>
<th>Zn</th>
<th>Ag</th>
<th>g/t Au</th>
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<td>4.8</td>
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<td>-</td>
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Selected Intercepts Only

March 2014
DHEM is a small investment compared to the potential returns

‘Kate lens’ would have been discovered much earlier if DHEM was used routinely at Woodlawn

DHEM increases ‘radius of investigation’ up to 100-200m (depending on size/conductance of ore)

I would like to see DHMMR trialed at Woodlawn.
Questions?
Acknowledgements

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- Erik Conaghan for time on the phone
- OuterRim Exploration Services for pulling out all stops to get a crew to site on short notice.