EXPLORING DEEPER: WHAT ARE YOU LOOKING FOR? WHAT DO YOU NEED TO FIND?

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Collectively >100 years mining industry experience
Mining Informed Targeting/Prospectivity

- The research project is centred on part of the Eastern Fold Belt encompassing the Osborne-Kulthor Cu-Au mine, Starra line of Au-Cu deposits and mines, Mt Dore Cu deposit, Merlin Mo deposit, Mt Elliott Cu-Au complex (SWAN, Domain 81, Corbould, Mt Elliott) and numerous historic mining operations and prospects.

- District with multiple Cu-Au mines, lots of smoke, yet only one large mass-mineable deposit (Ernest Henry), and a large prospective resource (SWAN – Mt Elliott).

- What are the prospects for discovery of additional mass-mineable deposits if we deepen the search space to 2km below surface?.....and what would a mineable deposit need to look like at this depth?

<table>
<thead>
<tr>
<th></th>
<th>Mt</th>
<th>Cu (%)</th>
<th>Au (g/t)</th>
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<tbody>
<tr>
<td>Ernest Henry</td>
<td>220</td>
<td>1.1</td>
<td>0.5</td>
</tr>
<tr>
<td>Swan</td>
<td>375</td>
<td>0.44</td>
<td>0.25</td>
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1 Glencore Reserves & Resources, 2014  
2 AME – Mt Elliott Scoping Study, 2012
DMQ aims to reduce the risk of deep exploration in the Cloncurry Cu-Au district through:

• Detailed geological understanding, informed by comprehensive analysis of geological, geophysical and geochemical datasets

• Considered interpretation of the controls on known orebody location, geometry, and tenor

• Insights into economic viability as affected by variations in deposit size, geometry, grade, depth, and proximity to transport and services infrastructure.
Introduction to PEET-UG

**Prospect Economic Evaluation Tool - Underground**

Interactive, spread-sheet based tool, for prospect/target evaluation (Pre-’Concept level’ analysis) in relative terms.

3 key purposes:

1. Where should I be exploring? .....mining constraints on prospectivity utilized in exploration strategy development.

2. Amongst my portfolio of targets/prospects, which of these has the potential to sustain a mining operation? Tool for ranking geological targets in terms of potential viability.

3. Tool for stage-gating the exploration process: is the prospect worth continued effort/expenditure?

The evaluative tool has been constructed to determine relative value of deposits amenable to underground mining, and as a standalone operation.
Venturing off the outcrop

Mt Isa Inlier
Greenfields Potential

>70% is under cover and virtually unexplored

(Hutton, 2015)
Mineral occurrences coloured as per legend on slide 6 & 9
No-go zone for EFB-style Cu-Au?

However, not all ore deposit-types are created equally.....
In-ground Value of a Selection of Metalliferous Deposit Types (Metal Prices as at 29/6/2016)

Bubble Size Indicates Relative Value of Deposits Using the Product of Unit Value and Resource Tonnage

Value (USD) of Contained Metal per Tonne

Total Resource Tonnage (million tonnes)
In-ground Value of a Selection of Metalliferous Deposit Types (Metal Prices as at 29/6/2016)
Extraction Options at Depth – Operating Costs

- SLOS (Atlas Copco, 2007)
- SLC
- BC (Atlas Copco, 2007)
- ISL
- SLG (DMQ Project, 2015)
- BPC
- ISM Consults (2013)

![Diagram of extraction options at depth]

M3 Consultants, 2013
Extraction Options at Depth – Operating Costs

SLOS

PEET Options

Not PEET Option
Key workings of PEET-UG

1. Inputs & Assumptions
   - Grade Distribution
     - Grade
     - Dip
     - Width
     - Depth of Cover
     - Down-dip Extent
     - Length of new road required
   - Distance to transport hubs
   - S.G.
   - Mining & Met. recovery
   - Exchange rate
   - Strike-length
   - Discount rate
   - Metal prices

2. Derived Quantities
   - Tonnage
   - In-ground value
   - Contained metal
   - Tonnes/vertical metre
   - Mine capex estimates
   - Mining rate potential
   - Mining advance rate
   - Haulage distances
   - Opex estimates (Mining + Geology + Processing + Admin)

3. Mining Method Selection
   - Potential mining block height
   - SLOS vs SLC vs BC determined by deposit geometry, dip, min. block height, in-ground ‘ore’ value
   - Truck vs Conveyor test (determined by depth below surface and production rate)

4. Project & Prodtm. Schedule
   - Mine development by year
   - Production by year
   - Schedule of ore processed and recovered metal
   - Schedule of concentrate produced (tonnes and grade)

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Key workings of PEET-UG (cont’d)

5. Revenue Schedule
- Payable metal by year
- Refining charges per year
- Realisation costs by year
- Total Gross Revenue by year

6. Capex Estimate Models
- Declines
- Vertical development
- Fixed plant and Infrastructure
- Processing Plant
- Lateral development
- Mobile equipment
- Infrastructure and services
- Total capex
- Tax deduction for capex
- Sustaining capex

7. Opex Estimate Models
- Mining costs assuming steady state production
- Processing costs
- General & Admin costs by year

8. Evaluation Model
- Collated revenue, capex, opex
- NPV calculation
- IRR calculation
- Maximum negative cash position
- EBITDA
- Time to payback
- Net Cashflow
Results: comparison with peer projects

- Collated key inputs and outputs on single sheet
- Result Check: Mined /Processed Tonnes (bubbles) and Grades Against Peer Projects
- Result Check: Production Rate vs Ore Reserve

Not intended for critical financial or feasibility analysis
PEET-UG used in anger.....on simulated data
Financial measures vs grade/-tonnage/geometry (mining method)

Above, Internal rate of return (IRR) vs grade. Bubble colour corresponds with geometry/mining-block (see image in top RH corner of slide). Bubble size is proportional to NPV, some annotated. Bigger target = more tonnes = higher value. Dashed line represents the 25% IRR ‘target’ outcome (AP pers. comms, 2016).

Parameters:
- 300m depth to top of deposit
- 80 degree dip
- CuEq calculation assumed Cu at USD$5500/t, and Au at USD$1200/oz, and a 20k:1 ratio of Cu:Au, as broadly observed in IOCG systems.
Impact of Orebody Dip and Geometry on Mining (& Financial) performance

Production rate vs Orebody dip, with bubble size indicating relative NPV (AUD millions)

Production Rate vs Orebody Footprint (bubble size = dip ranging from 90 to 45 deg)
Indicative ‘cut-off’ grades by mining method/orebody geometry

CuEq grade vs Depth vs Geometry (& Mining Method)

Cu Equivalent grade (Cu: USD 5,500/t, Au: USD 1,200/oz) at NPV=0

Parameters:
- 500m mining block height only
- 80 degree dip
- CuEq calculation assumed a 20k:1 ratio of Cu:Au, as broadly observed in IOCG systems.

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DMQ Summary

Aiming to reduce the risk profile of exploring at depth in the Cloncurry district by identifying tracts of ground which are:

• prospective for large, mass-mineable mineral deposits, i.e. **fertility**

• comprise geotechnical, geothermal, geographical conditions which are technically amenable to mass-mining methods, i.e. **mineability**, and

• comprise all of the above, but with the prospect of positive financial outcomes....subject to internal & external factors, i.e. **viability**.