INTEGRATION OF TRADITIONAL GEOLOGY AND NEW TECHNOLOGIES TO BUILD A DEPOSIT MODEL

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• The information in this presentation that relates to Exploration Results is based on information compiled by Mr. Kenneth Hellsten, who is a Fellow of the Australian Institute of Mining and Metallurgy (AusIMM). Mr Hellsten is an employee of Golden Cross Resources Limited, and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Mr. Hellsten consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

• The update of the Mineral Resources for the Copper Hill Copper-Gold Project was co-ordinated by Mr Ken Hellsten, Interim CEO who is a Fellow of AusIMM and fulltime employee of Golden Cross Resources Ltd. The information in this report that relates to Exploration Results is based on information compiled by Mr Bret Ferris who is a member of the Australian Institute of Geoscientists. Mr Ferris is a fulltime employee of Ferris Metals Pty Ltd and consultant Exploration Manager to Golden Cross. The information that relates to database review was compiled by Mr Glenn Coianiz, who is a member and RPG of the Australian Institute of Geoscientists. Mr Coianiz is a fulltime employee of Exploris Pty Ltd and a consultant to Golden Cross. The statement of Mineral Resources was compiled by Mr James Ridley who is a member of AusIMM and an employee of Ridley Mineral Resource Consulting Pty Ltd and a consultant to Golden Cross. Each of Messrs Hellsten, Ferris, Coianiz and Ridley have sufficient experience relevant to the style of mineralisation and the type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves (JORC 2012). Each of Mr Hellsten, Mr Ferris, Mr Coianiz and Mr Ridley consent to the inclusion in this report on matters based on information compiled by them in the form and context in which it appears.
Copper Hill- A Long Lived Project

- Cu production 1845-1931
- Exploration 1966+
- GCR 1998+
- JORC 2012
Presentation Outline

• General Geological overview
• Traditional Geology Approach
  • Mineralisation model
• Structural Framework
  • Smartphone Technologies
  • Structural data collection & analysis
• 3D deposit model
  • Leapfrog implicit modelling
• Mineral resource estimate
Corbett 2013-2014
- Review Copper Hill system & potential
- Target Generation

2014
- 6 hole drilling program
- High quality modern data collection
- Update geological understanding
- Build an deposit model
- Mineral resource estimate

Approach
- Traditional geology techniques
- Good science
  - Porphyry–epithermal environments
- Modern 3D computer model development
GCHD470 212.6m Fine-grained Crowded Tonalite Porphyry weak mineralised
Copper Hill Tonalite and low Cu-Au grade mineralisation

Microdiorite and high Cu-Au mineralisation

Late Tonalite

Carbonate-base metal Au mineralisation

Overprinting laumontite ± gypsum + supergene Cu

M, B, & C veins in microtonalite and wall rocks

Au > Cu

0.4% Cu + 0.2 g/t Au in stockwork quartz veins

D & E veins

polyphased tonalites

migmatite source

late mineral

structure

uplift & erosion

uplift & erosion

STAGE 1

STAGE 2

STAGE 3

STAGE 4

STAGE 5

STAGE 6

SIMPLIFIED COPPER HILL GEOLOGICAL MODEL as at 3/3/2015 Corbett & Hayward
STAGED PORPHYRY Cu-Au EVOLUTION

**EARLY**

1. **Stage 1**
   - Intrusion emplacement and heat transfer with prograde alteration. E veins.
   - Initiation of A & M quartz vein formation and early mineralization.

2. **Stage 2**
   - B quartz vein formation.
   - Exsolution of magmatic volatiles and formation of barren shoulder.
   - Cooling and collapsing of retrograde phyllic and argillic alteration and overprinting collapsing advanced argillic alteration.
   - Local retrograde alteration selvages to B grades.

**LATE**

- Continued retrograde collapse. D vein mineralization, & post-mineral features.

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Corbett SC2012_1465

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GCHD470 51.4m:
MTP with M-Veins & Cpy-Bn C veins
Copper Hill Tonalite and low Cu-Au grade mineralisation

Microdiorite and high Cu-Au mineralisation

Late Tonalite Carbonate-base metal Au mineralisation

Overprinting laumontite ± gypsum + supergene Cu

**Cu-Au**

1.5-2% Cu + 3-18g/t Au

M, B, & C veins in microtonalite and wall rocks

Au > Cu

**Cu-Au**

0.4% Cu + 0.2g/t Au

in stockwork quartz veins

D & E veins

polyphasal tonalites

magmatic source

stage 1

late mineral

structure

uplift & erosion

reactivated early structure

STAGE 1

STAGE 2

STAGE 3

STAGE 4

STAGE 5

STAGE 6

SIMPLIFIED COPPER HILL GEOLOGICAL MODEL as at 3/3/2015 Corbett & Hayward

GCHD470 71m Weak to moderate mineralised CTP intrusion within MTP (not visible)
Stage 1 Periphery:
GCHD469 304m
Mt Hornfels & D vein
Se Selv

Stage 2 Periphery:
GCHD469 E-Vein Qz-Ca-Ep-Mt-Py-Cpy-Mo

Stage 2 Periphery:
GCHR314 D-Vein
Ca-Py & Se selvage

Syn Stage 2 Proximal:
GCHD470 630.5m Barren
syn- Intra mineral
porphyry B-Veins

Syn Stage 2-3:
GCHD469 718.6m HBX.
Qz Vn, Min & K-Feld
clasts
Copper Hill Tonalite and low Cu-Au grade mineralisation

Microdiorte and high Cu-Au mineralisation

Late Tonalite

Cu-Au

1.5-2% Cu + 3-18 g/t Au

M, B, & C veins in microtonalite and wall rocks

Cu-Au

0.4% Cu + 0.2 g/t Au

low grade mineralisation

au > cu

Carbonate-base metal Au mineralisation

Overprinting laumontite ± gypsum + supergene Cu

Au-Ag-Zn-Pb

0.4% Cu + 0.2 g/t Au

Cu-Au

D & E veins

polyphasal tonalites

uplift & erosion

stage 3

late mineral

structure

STAGE 4

reactivated early structure

STAGE 5

uplift & erosion

STAGE 6

SIMPLIFIED COPPER HILL GEOLOGICAL MODEL as at 3/3/2015
Corbett & Hayward
Stage 3: GCHD470
Veined & Min MTP x-cut by weaker min CTP

Stage 3: GCHD474 158.2m
Veined & Min MTP x-cut by weaker min CTP

Stage 3: GCHD474 172.5m
CTP wall rock. A-B-M sheeted veins. Late C-vein

Stage 2 D-Vein with Se. X-cut by Stage 3 Qz vein

GCHD474 122.3m CTP.
GCHD474 162.5m CTP wall rock x-cut by Qz & M-Veins. Later B- and C-vein suture

Copper Hill Tonalite and low Cu-Au grade mineralisation

Microdiorite and high Cu-Au mineralisation

Late Tonalite

1.5-2% Cu + 3-18g/t Au

0.4% Cu + 0.2g/t Au

Cu-Au in stockwork quartz veins

D & E veins

M, B, & C veins in microtonalite and wall rocks Au > Cu

low grade mineralisation

Carbonate-base metal Au mineralisation ± gypsum + supergene Cu

Au-Ag-Zn-Pb

Overprinting laumontite uplift & erosion

STAGE 5

STAGE 6

reactivated early structure

SIMPLIFIED COPPER HILL GEOLOGICAL MODEL as at 3/3/2015 Corbett & Hayward
GCHD473 407.5m  CTP Stage2 Qz & M-Veins  X-cut by Stage 4 Cb-Base metal Veins

Stage 4: Low temperature white core sphalerite

GCHD469 164m  Px-Fldr Phyrrie Basaltic Andesite; Cb-BM Breccia

Qz veined structure, x-cut by CBM vein, and late stage Gypsum-Laum
Copper Hill GCHD469 460m:

- Quartz (A-Veins) & quartz-magnetite (M-Veins) veined tonalite porphyry (Unmineralised)
- Brecciation
- Quartz tonalite porphyry intrusion
- Late stage pyrite-calcite-chalcopyrite infill (low level copper mineralisation)
Section 5600N

Central Qz, M-veins C-veins with CTP Stock/Dyke

Qz Vein Structures

Central Qz, M-veins C-veins with CTP Stock/Dyke

Qz-Mt Veined Structures

Increasing Brecciation & HBX

Section 5300N

CTP dykes with Qz & M-veins and C-veins

Sheeted Vein Envelope

Copper Hill

Schematic X-Section
MTP with A-M Veins + Cu-Au C-Veins as carapace
Geology Model Fundamentals

Approach
- Traditional observational geology
- 6 new drill holes
- Mineralised systems model

Outcome
- Well defined mineralisation paragenesis and conceptual deposit model
- Microtonalite porphyry intrusions associated with high grade
  - Potential for highly variability geometry over short ranges

Challenge: Conversion to 3D
- Key is integration of surface and drill core orientated structures
- New technologies to check and validate historical and new data
Copper Hill open pit (looking to Sth)

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Regional Structure

- Regionally significant NS arc parallel structures

- Orthogonal convergence
  - NW trending transfer structures

- Oblique convergence
  - Dilation on NW structures
  - Porphyry emplacement

- Ongoing oblique convergence
  - Dilation on E-W structures
Project Structural Framework

Approach

- 10,764 orientated DH measurements
  - ACE Tool
  - Gyroscope DH survey
- Smartphone technology
  - 404 surface measurements
  - FieldMove Clino®
- Dips® structural analysis
Conclusions

Well defined internal structure framework

• E-W structures dominant (Dilatant)
• NW structures subdominant (Dilatant)
• NE structures least abundant (Compressional)

• Low grade early predominantly NW
• High grade copper-gold mineralisation is dominantly E-W trending
• Structural intersections are significant in localising intrusions

Challenge

• How do we model this in 3D?
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Copper and copper-gold mineralisation paragenesis, and structural and mineralogical controls have been determined and are robust.

Early Stage 1 lower grade mineralisation lies predominantly in the moderately dilatant northwest trending structures.

High-grade Stage 3 mineralisation is controlled by the more dilatant predominantly east-west trending structures.

Near surface leached zone that is copper depleted.

Supergene Cu and probably Au enrichment in the oxidised upper portions forming sub-horizontal higher grade zones.
Leapfrog Implicit Model

**Approach**

- 5 key assumptions
- Key Cu-cutoff grades
  - 0.1%; 0.2%, 0.3%, 0.4%; 0.5%, 1%

1. Isotropic grade shells
2. Anisotropic grade shells - unconditioned
3. Anisotropic grade shells - conditioned by structures and geological surfaces

**Outcome**

- Multiple scenarios modelled
- Anisotropic shells conditioned by structures and geological surfaces best represent geology

**Challenge:**

- Construct geological based estimation domains
Leapfrog Implicit Model

Isotropic

Anisotropic
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Mineral Resource Estimate

- Geology based domains
- Reflect controls on mineralisation
- 28Mt @ 0.56% Cu & 0.53g/t Au at 0.4% Cu cut-off grade
  - 160,000t copper metal (+1%)
  - 480,000oz gold (+9%)
- Meets JORC 2012 guidelines

Oblique view towards the southeast of 2015 resource model blocks > 0.2% Cu and pit shell used to constrain resource classification (unclassified outside pit)  GCR ASX Announcement
Conclusions

• Using traditional geology approach Copper Hill has a well established geology and mineralisation model

• Modern technologies when combined with traditional geology approaches provide an opportunity to re-evaluate long lived projects

• 3D implicit models provide support for extension and expansion targets at Copper Hill

• Opportunity exists to further optimise the mineral resource and target ongoing scoping and feasibility study work programs
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