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Technical Update for geohug

From Belt Scale to Mineral Discovery

Glen Diemar, Denis Ryskal, Ross Faichney, Jack Corbett ASX: AGC | 27 September 2023

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For further details, refer to the AGC IPO Prospectus and ASX Announcements (ASX:AGC) which are available on the Company website www.austgoldcopper.com.au

The information contained within this Presentation is extracted from the following reports titled:

- ASX AGC Release 'South Cobar Exploration Update Rig Confirmed' 28 August 2023
- ASX AGC Release 'Planet IP Survey Highlights Fourth and Fifth Drill Targets' 20 June 2023
- ASX AGC Release 'Hilltop returns strong gold in rock chips' 16 June 2023
- ASX AGC Release 'Bongongalong An Emerging 5km Gold Silver Base Metal Trend' 30 May 2023,
- ASX AGC Release 'Hilltop IP Survey defines third compelling drill target" 22 May 2023
- ASX AGC Release 'Achilles IP produces stellar drill targets' 5 May 2023
- ASX AGC Release 'Grandview delivers strong shallow gold results' 10 October 2022
- ASX AGC Release 'Carlisle Reefs results extend gold mineralisation' 26 May 2022
- ASX AGC Release 'Boxdale-Carlisle Gold Trend above Large Ultramafic intrusive' 27 April 2022
- ASX AGC Release 'Near surface gold intersected along Boxdale-Carlisle trend' 2 March 2022
- ASX AGC Release 'Exploration Update' 15 Sept 2021
- ASX AGC Release 'Base-Metal Sulphides overlying EM Conductor at Achilles' 3 May 2021.
- ASX AGC Initial Public Offering Prospectus 18th November 2020

which are available to view on www.austgoldcopper.com.au The Company confirms that it is not aware of any new information or data that materially affects the information included in the original document/announcement and the Company confirms that the form and context in which the Competent Person's findings are presented have not materially modified from the original market announcement.

For further details please contact: Glen Diemar, Managing Director +61 434 827 965 gdiemar@austgoldcopper.com.au

Australian Gold and Copper Ltd Suite 7, 55 Hampden Road, Nedlands, Western Australia 6009 P.O. Box 785, West Perth WA 6872 ACN 633 936 526 Phone (08) 9322 6009 Email info@austgoldcopper.com.au www.austgoldcopper.com.au This presentation has been approved for release by Glen Diemar, Managing Director of Australian Gold and Copper Ltd. Thank God for the cartoonists who simplify our lives into pictures







Cobar History



Cobar Superbasin – Mining History

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Copper-gold period,1869-1921

- Great Cobar
- New Cobar
- CSA Mine
- Chesney
- Mt Boppy
- Mt Hope
- Creamy Hills

Gold period, 1935-1952

New Occidental

Modern Mining - polymetallic period, 1962-present

- CSA Copper mine
- Elura (renamed into Endeavour) lead zinc mine,
- Peak Gold mine
- Manuka Silver
- Hera Mine (Au- polymetallic)
- Federation (Zn-Pb-Au-Cu)



Great Cobar Copper Mine, 90 fathom level, Cobar

COD

11 11 11



1900

CSA Mine, level 6, Cobar

Sydney, Australia

AEGC 2018



Cobar Discovery Methods



Primary search method used at the project-scale BASE METAL discoveries (>0.1 Mt Cu-eq) in Australia: 1900-2012



Percentage of total discoveries

Note: Analysis based on detailed analysis of 127 Cu+Ni+Zn+Pb projects (out of 185 known discoveries)

Source: MinEx Consulting C November 2013

ie What method was used to decide where to peg the leases

Base-Metal Deposit Discovery Methods



Integrated approach Basin architecture Geophysics

Source: adapted from Vlad David

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Soil Sampling – "In Lead+Arsenic+Antimony we Trust"



Lead (Pb) is the most insoluble metal by almost 2 orders of magnitude, almost 4

orders when arsenic present, forming

mimetite $(Pb_5(AsO_4)_3CI)$ in oxide zone

Mimetite from CSA Gossan

McKinnon A., 2007 A geochemical exploration model for ore deposits in the Cobar Basin PhD Univ. Western Sydney

Diemar G., 2009, Dispersion of Sb from oxidising ore deposits, Pure Appl. Chem.,

Elura Discovery (1972-1974) by Electrolytic Zinc Co

ELURA

ANOMAL

DDH E2

200 m

DDH

GROUND MAGNETICS (nT)

OREBODY AT 100m

BEDROCK Pb (ppm)

GOSSAN FLOAT

GRAVITY

GRADIENT ARRAY IP ANOMALY



FIG. 2-Airborne magnetic survey flown by Geometrics in May 1972, showing proximity of the Elura anomaly to the survey and final compilation boundaries.

FIG. 3-Composite plan showing coincidence of ground magnetic, gravity, gradient array IP and bedrock Pb anomalies. Bengaccah anomaly is believed to be a secondary geochemical anomaly superimposed on a larger down palaeoslope anomaly and lacks any geophysical anomalism.

* Aerial Magnetics (1972)

- Ranked 5th out of 25 mag anomalies
- 11th to be followed up with magnetic modelling, but only one that wasn't paleochannel maghemite

Ground magnetics (1973)

Geochem auger

1200m long Pb >160ppm

IP - chargeability anomaly Drilling (Feb 1974)

Discovery Hole DDHE1 ~50m gossan + leached sulphides

By February 1976

23 more holes defined 27Mt at 8.4% Zn 5.6% Pb 139g/t Ag*

*All taken from Schmidt 1990 AusIMM monograph 17 (non-JORC)

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Elura Deposit: Deposit Geometry





Sydney, Australia Source: Vlad David

Federation – Discovery by Pb soils >80ppm, IP and Drilling



*FDD086 results Refer ASX AMI Release 'Federation Exploration Update' 13 August 2020

Hera Discovery



Hera Au-base-metal mine discovered by lead geochem and then drilling + EM conductors



*Discovery Hole 8.6m at 26.6g/t Au, 70g/t Ag, 1.8% Cu, 10.9% Pb, 7.0% Zn from 371.4m



*Source: 2017 Ian Cooper, "Finding Hera" pptx 2017 CWEDG

Cobar Exploration Guidebook



General Rules

Geology

- Lith and structural mapping (where possible)
- Find Hills: quartz alteration = topo rises
- Find Cobar analogies that best fit your rock types and study their discovery histories

Geochemistry

- <u>Pb, As in Soil</u>, + Sb Bi (immobile elements)
- Regolith mapping

Typical Features

Cobar-style Zn-Pb-Cu-Au-Ag polymetallic targets

High variability of metal zonation – lode to lode

Pb Zn upper levels, Cu lower levels

Geophysics Rules

- **Gravity** highs caused from sap-rock "topographic" highs caused by quartz alteration being more resistive to weathering (gravity highs not caused by the massive sulphides) (general consensus)
- **Magnetics** Mandatory for mapping. Deposits can have mag highs by pyrrhotite/magnetite (chemical reaction)
- <u>IP works on most deposits</u> sulphides are chargeable, but doesn't directly detect massive sulphide lodes
- **EM/DHEM** works 30% of the time, need massive Cu or pyrrhotite lodes (with minimal sphalerite)

Drilling Rules

- **Drilling** Hit thin semi-massive sulphides? Yes/No,
- If yes, then drill again along strike, even 20m step outs can result in substantial lode widths



South Cobar Aust Gold Copper Ltd

Southern Cobar Project

South Cobar Project ···· Moorefield Project ···· Gundagai Project

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Formation of marginal growth faults, rapid terrain subsidence, sedimentation and volcanism; volcanic hosted mineralisation formed

Basin Sag Phase 410-400 Ma

Continuous subsidence and deposition Basin digenesis and dewatering formation of sediment hosted and Cobar MVT deposits







Rhyolites – Large Felsics (Ural Volcanics @ Lake Carg) cf. Iberian Pyrite Belt (Spain), Mount Reed Volcanics (Tas)





Silicified fiamme Bx with chlorite, pyrrohtite and fluorite





CHEMISTRY OF IGNEOUS ROCK UNITS ON THE CARGELLIGO 1:250,000 SHEET, NSW (updated and revised)



Pb-Zn-Ag-Cu-Au mineralisation is associated with the Mount Kennan Volcanics (Wagga Tank and Fence Line Prospects) and in the Ural Volcanics (Browns Reef). Sporadic elevated Zn, Pb Cu Ag values often correlate with very high Zr and Ga and low Ba values and indicate concentration of these metals during extreme fractionation. These features, the presence of known mineralisation and evidence of volatile exsolution (miarolitic cavities) make the Ural Volcanics metallogenically prospective.



Halogen Rich Magmas – Fluorite in groundmass





Turbiditic Mudstones – Find the right stratigraphy



Integration of historic work by Gary Jones 1997, 2007; GSNSW; Kate Bull PhD CODES & AGC's mapping to locate the interfingering turbidites (green polygons) considered to be the prospective horizon when crossed by 2nd & 3rd order growth faults



Achilles Petrography by Carol Simpson October 2022

"The samples in this group are interpreted to be Cobar Basin turbidites of quartz-sedimentary lithic provenance. Basin rocks in the Achilles area have been grouped as Preston Formation, described by GSNSW mapping as in part volcanic-derived, however, no evidence of volcanic input was observed in any of the samples in this report."

Relatively poorly sorted aggregate of angular

quartz, sedimentary lithic grains and sericite



Mudstone composed of strongly aligned white mica, low birefringent possible kaolinite, brighter possible illite & minor dark goethite grains



Ag 77.5 g/t As 860ppm Mo 15ppm Sb 562ppm

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Achilles rock chip sample A3RK023



Achilles

Achilles Target

Located 20km Northwest of Lake Cargelligo

Drilling resulted in extensive elevated Cu Pb Zn¹

5m @ 4.9% Pb+Zn, 0.3% Cu 4g/t Ag from 89m (A3RC0004)¹

inc 1m @ 10.6% Pb+Zn, 1.4% Cu, 12g/t Ag from 89m

85m at 0.13% Cu (A3RC014)³

Federation gold + base-metal Mine was discovered by lead in soil geochemistry, IP and then drilling $^{\rm 2}$

Recent Achilles work⁴ resulted in two large IP targets

22mV/V, 850m long, strengthening at depth

Favourable stratigraphy (Turbitide – volcanic contact)

Lead in soil geochem + outcropping qtz-seri-pyrite alteration

New targets to be drill tested - Significant discovery potential









AGC ASX 6 October 2021; AGC ASX 5 May 2023, Achilles IP produces stellar drill targets

¹Refer ASX AGC Release 'Base-Metal Sulphides overlying EM Conductor at Achilles' dated 3th May 2021

² Refer ASX AGC IPO Prospectus 18th November 2020, p100-117
³ Refer ASX AGC Release 'Exploration Update' dated 15th Sept 2021



Achilles

What we see as important

On the district - prospect scale

Favourable stratigraphy (Turbitide - volcanic contact)

Permeable vs impermeable facies

Major mylonite zones (typically not prospective)

Second order faulting for directing fluids

Third order faulting – considered the growth faults

Margins of domes for rheology









FIGURE 7.11 | Genetic models for the formation of stratabound altered footwall zones related to VHMS mineralisation. Fluid flow below and parallel to the seafloor and stratigraphy is controlled by the distribution of permeable volcanic facies (e.g. volcaniclastic units), or impermeable cap-rocks (e.g. sills or lavas). (A) Stratabound subseafloor replacement mineralised and altered zones (e.g. Mount Lyell deposit, Mount Read province and TAG deep Cu zone, Middle Valley, Juan de Fuca Ridge). (B) Stratabound ore lens and altered zones confined below an impermeable volcanic unit such as a sill (e.g. K lens at Rosebery, Mount Read province). CODES Alt volc rocks

¹ Refer ASX AGC Release 'Base-Metal Sulphides overlying EM Conductor at Achilles' dated 3th May 2021 ² Refer ASX AGC IPO Prospectus 18th November 2020, p100-117
³ Refer ASX AGC Release 'Exploration Update' dated 15th Sept 2021

Rock Types vs Alteration: Strengthens east and south



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Mineralisation and Pathfinders: Relative to Rock Types Favours the eastern rhyolite volcs





Alteration: Highest Copper within Strongest Alteration

Follow the zones of highest alteration towards the Massive Sulfide





Mg_ppm

Achilles A3DD001 Chalcopyrite (Cu) developing in Qtz-phengite-illite-muscovite alteration







unloration Undate' dated

Chalcocite after cpy 220m



Achilles A3DD001 Galena (Pb) & Sphalerite (Zn) developing AGC¹ in Qtz phengite-illite-muscovite alteration



Achilles Volcanic Rock Types







A3RC004: 89-90m 10.4% Pb+Zn 1.4% Cu ASX AGC 3th May 2021

In 2022: AGC's Hypothesis for Induced Polarisation Geophysics AGC's Achilles vs Peels (ASX:PEX) Wagga Tank – Southern Lights



IP Results 2023: By Fender and Mitre (Rob Angus)



Achilles Long Section Looking West (2.5km Long)





8km long Achilles trend within 80km Turbidite-vF contact horizon

Drill Achilles for New Discover-y-(ies)

Then extend IP down the shear zone

Drill Target 1: Hilltop

Near Term Discovery Potential

Hilltop Target

Located 20km west of Lake Cargelligo

Large IP 28mV/V chargeability anomaly¹

Strong shallow 700m in length

Coincident with

- Multiple 250m long gold bearing gossans to 6.6g/t²
- Strong soil anomaly
- Intense stockwork veining & alteration

Never drill tested - Significant discovery potential

Rig confirmed, drilling from mid-September 2023⁴

 ¹ Refer ASX AGC Hilltop IP Release 22 May 2023, ² ASX AGC Hilltop IP Release 16 June 2023, ³ ASX AMI 31 May 2023 Investor Presentation – Federation Financing & Equity Update
⁴ Refer ASX AGC Release 28 August 2023





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Thank you

