



## **QUARTERLY REPORT DECEMBER 2011**

22 Edgeworth David Ave  
Hornsby NSW 2077  
Phone (02) 9472 3500  
Fax (02) 9482 8488

30 January 2012

### **HIGHLIGHTS**

#### **Copper Hill**

- Scoping Study delivered with plant capital cost estimate at \$92 million
- Total Geological Resource: 215 million tonnes at 0.3% copper and 0.24 g/t gold
- Constrained Resource: 153 million tonnes containing 511,000 tonnes of copper and 1.35 million ounces of gold
- Metallurgical studies continuing

#### **Other Projects**

- Cargo drilling completed: 6 holes totalling 757.9 metres
- Gawler Craton copper-gold: progress with access and other approvals for planned drilling

#### **Copper Hill**

Consulting engineering firm, Calder Maloney Pty Ltd, has completed a scoping study of the engineering requirements and plant capital costs for development of the Copper Hill copper-gold deposit near Molong, NSW.

The design for the study was based on a 2 million tonnes per annum crush-grind-float mill and plant to produce a 20% to 25% copper concentrate containing 10 to 15 grams per tonne gold. Mill throughput would be provided from a 30 million tonne starter pit with an average grade of 0.4% copper and 0.5 g/t gold at a cut-off grade of 0.2% copper.

The plant capital cost estimate is \$92M and the overall total project capital cost estimate, including the plant, has been assigned a notional value of \$155 million.

A revised resource estimate for Copper Hill has been made by Richard Lewis, principal of Lewis Mineral Resource Consulting Pty Ltd, FAusIMM, who is a Competent Person under the meaning of the 2004 JORC Code.

The constrained Copper Hill Geological Resource, of 153 million tonnes, contains 511,000 tonnes of copper and 1.35 million ounces of gold. Designs are in place for an initial 30 million tonne open pit containing 120,000 tonnes copper and 480,000 ounces of gold.



# GOLDEN CROSS RESOURCES LTD

ABN 65 063 075 178

The new 153 million tonne resource is constrained by a pit design based on elevated copper and gold metal prices as set out in the Compliance Statements included in this report. There is an additional 62 million tonnes of mineralization estimated outside this pit design, which at present does not have reasonable prospects of eventual economic extraction and has not been included in the constrained resource estimate. These resources and the additional mineralization are all shown in Table 1.

These new resources form the basis for current pit design planning and economic studies.

Inside Reporting Pit						Outside Reporting Pit				
Measured + Indicated + Inferred Resources						Additional Mineralization				
Copper Cut-off grade %	Million Tonnes	Cu %	Au g/t	Cu metal '000 tonnes	Au metal '000 Oz	Million Tonnes	Cu %	Au g/t	Cu metal '000 tonnes	Au metal '000 Oz
0.1	343	0.22	0.20	769.9	2207.1	253	0.17	0.12	433.4	972.8
0.2	153	0.32	0.27	493.2	1331.4	62	0.28	0.18	172.7	354.0
0.3	66	0.43	0.36	284.6	770.4	18	0.37	0.25	64.3	141.2
0.4	30	0.53	0.46	159.1	441.8	4	0.47	0.36	19.3	48.0
0.5	13	0.65	0.60	82.4	246.0	1	0.56	0.52	5.4	16.1
<b>Measured Resource</b>										
0.1	133	0.25	0.24	335.2	1008.5					
0.2	70	0.35	0.32	244.1	714.0					
0.3	35	0.45	0.42	159.1	476.7					
0.4	17	0.56	0.55	96.0	303.5					
0.5	9	0.68	0.70	58.8	194.8					
0.6	5	0.77	0.79	38.6	127.7					
<b>Indicated Resource</b>										
0.1	130	0.21	0.18	272.6	763.8					
0.2	51	0.31	0.25	158.4	406.8					
0.3	20	0.41	0.32	83.2	205.6					
0.4	9	0.50	0.36	43.5	101.6					
0.5	3	0.61	0.43	19.0	43.2					
0.6	1	0.71	0.54	8.6	21.0					
<b>Inferred Resource</b>										
0.1	80	0.20	0.17	162.2	434.8					
0.2	31	0.29	0.21	90.7	210.6					
0.3	11	0.39	0.25	42.3	88.2					
0.4	4	0.47	0.27	19.6	36.8					
0.5	1	0.57	0.31	4.6	8.0					
0.6	0.1	0.83	0.22	0.9	0.8					

Table 1: December Resource Estimate



## **Copper Hill – Metallurgy**

Improved copper and gold recoveries are crucial to the success of Copper Hill and there have been more hurdles to clear than were anticipated following the post-feasibility study change of strategy. The previous total sulphide recovery model (for roaster – acid plant – SXEW) is not applicable to the production of a saleable copper-gold concentrate.

A detailed metallurgical test program is being conducted by GCR in two reputable test laboratories. Bond Work Indices and relevant SAG Mill Comminution data have been determined from drill core samples and have provided a comprehensive design basis for the comminution circuit. These tests determine the energy and time required to grind the ore to the optimum size to float the valuable sulphide minerals. The test-work focus remains on improving and optimising flotation concentrate grades and value recovery for incorporation into the evolving process designs.

The key metallurgical design parameters were 75% copper and 30% gold recovery into a saleable 25% copper, 10-13 g/t gold grade concentrate, with additional gold recovery from cleaning circuit tail leach. Significantly higher value recoveries to concentrate have been recently demonstrated with a revised flow sheet, which focuses on relaxing copper grade while maintaining copper recovery, and thereby enabling improved gold recovery of 50-60% for a gold grade in the 15-20 g/t range. Replication of these encouraging test results will be the primary aim of the March 2012 quarter.

On the basis of minimum recoveries incorporated into the key process parameters, and allowing for mine dilution, early annual production levels, from the 2Mtpa plant, of around 7,000 tonnes of copper and 8,500 ounces of gold should be achievable.

## **Cargo**

A six-hole drilling program was completed to further investigate prospects where non-JORC historical resources suggest potential for a small, mineable gold resource; internal pit optimisation studies have confirmed this conclusion.

Three target areas have been defined by previous drilling. Best results from the latest drilling are shown below.

- **Spur-Dalcoath Lodes:** These adjacent lodes are two of the radial gold-bearing sheeted vein systems peripheral to the Cargo porphyry intrusion. Pit optimisation studies of the current resource indicate potential for a small but profitable mining operation here. A substantial drilling program is required to raise the resource to JORC compliance.

**SD001: 9m @ 2.07 g/t gold from 41m**

**SD002: 55m @ 0.34 g/t gold from 21m**

- **Gum Flat Eluvials:** this area comprises gold-bearing material eroded from the radial gold vein systems. There is drill indicated (Shell Minerals) potential for near-surface economic mineralisation.

**GF004: 39m @ 0.26 g/t gold from 19 m**

**GF005: 36m @ 0.34 g/t gold from 8m**



- **Gum Flat peripheral andesite basement:** Gold mineralisation has been drilled previously in this setting and GCR's drilling has confirmed its potential.

GF006: 11m @ 0.55 g/t gold from 48m

GF007: 18m @ 0.53 g/t gold from 113m

Results from Gum Flat confirmed the presence of broad low-grade gold zones with sporadic high grade values. At Spur-Dalcoath, the result in SD001 confirmed potential for a moderate grade hard-rock resource at shallow depth.

## **South Australia**

*Oolgelima Hill, Giddinna, Warriner Creek, Codna Hill, Koolymilka*

Access requirements were progressed for first-pass drilling of up to 6 geophysical targets in South Australia. A Mining Act Part 9B Agreement was signed with the Arrabunna Native Group on 28 November 2011 and the Woomera Access Deed was renewed from 24 October 2011.

Access reconnaissance of the 6 targets was subsequently completed.

Further geophysical evaluation, by Melbourne-based 3D modelling consultants PGN Geoscience, is underway using GCR and South Australian government geophysical data to determine target depths.

A new tenement application, Stuart Range, was lodged over ground surrounding Coober Pedy and adjacent to other Golden Cross tenements, where aeromagnetic data indicates a continuation of regional structural features which may host IOCG mineralisation.

## **Argent Minerals – Kempfield Transaction**

The final transaction between GCR and Argent Minerals (ARD), the last tranche of the Kempfield Project Sale Agreement, has been completed. Argent now has a 100% interest in the Kempfield Silver Project. Kempfield is the subject of a definitive feasibility study to produce in excess of 20 million ounces of silver and over 100,000 tonnes of lead and zinc in concentrates.

The following was received by GCR at settlement during the December Quarter:

- \$1.0 million in cash; and
- \$1.0 million in fully paid Argent shares

ARD issued the 4,280,309 shares to GCR at approximately \$0.234c per share.

GCR now holds a total of 5,280,309 shares in ARD representing 4.3% of ARD's issued capital.



## Copper Hill Resource

### Compliance Statements

The optimised pit bounding the resources was generated using Whittle software to maximize undiscounted cash flow using USD\$5.0/lb copper and USD\$2,000/oz gold commodity prices, recoveries of 85% for copper and 80% for gold and overall pit wall slopes of 45°. Table 1 reports the resources that fall within the pit shell as well as (separately), the additional mineralization that is outside. The resource that falls within the optimized pit does not constitute a reserve.

A higher profit resource contained within that listed in Table 1 is shown in Table 2. This resource is bounded by a pit optimized using a copper price of USD\$6389/t (USD\$2.85/lb) and gold price of USD\$1287/oz and variable copper and gold recoveries. It shows the potential for a higher-grade starter pit, currently the subject of detailed economic studies based on 2 million tonnes per annum mill throughput.

### Statistics

Number of drill holes: 759

Number of assays: 57529 (Copper), 57542 (Gold)

Number of SG Measurements: 982

### Nature of Data

A total of 87601m of assayed drill holes were available for resource estimation. This included 23285m of diamond core (PQ, HQ and NQ), with the balance being reverse circulation (RC). The RC holes were predominantly two metre composite samples and the DD holes were either sampled in one metre intervals for HQ or PQ sized core or two metre intervals for NQ sized core.

For estimation purposes the assay data were composited into two metre intervals. Analyses were undertaken at Australian Laboratory Services Orange (ALS) using 50g Fire Assay (Method AA26) for gold and ICP41 for copper and a suite of other elements. Standards and blanks were inserted into the sample stream at regular intervals, nominally on a 25 metre cycle. Duplicate samples were submitted every 20 samples for RC holes only.

The block model consists of blocks of 20m x 20m x 5m (XYZ). The base of the model was changed to -80RL as the previous reporting pit design bottomed on the previous base of estimation (RL100). Block densities were modelled using the results from 982 samples taken of drill core from GCHR046 and above. Densities were determined by classical methods on site with check measurements, comprising approximately 10% of the bulk density samples, conducted at ALS in Orange, NSW.

### Estimation:

Ordinary kriging of top-cut drill-hole composites was carried out using Datamine software with the search and data acceptance parameters used for the sulphide domains being:

Pass 1: search ellipse of 40m x 45m x 40m using a minimum of five 2 metre composites

Pass 2: search ellipse of 60m x 67.5m x 60m and using a minimum of five composites

Pass 3: search ellipse of 100m x 112.5m x 100m and using a minimum of five composites

All passes used a maximum of 15 composites. A flatter search (40m by 40m by 15m) was used for estimation of the oxide and transition domains. In addition to oxidation, domains were defined on the basis of position in relation to faulting and recognition of barren intrusives. Two new domains that defined zones of higher grade mineralization were also used.

The resource was validated by comparison to the de-clustered composites and to Nearest Neighbour and Inverse Distance Squared estimates. Local and global variability were also found to be satisfactory.

### Classification of Resources

Despite the use of more drill-hole data, different domains and different search parameters, the total resources above a cut-off of 0.2% copper have the same copper and gold grades and only slightly different tonnes to those reported in June 2011. The same resource classification scheme was used.



# GOLDEN CROSS RESOURCES LTD

ABN 65 063 075 178

<b>Inside Small Pit "I"</b>					
<b>Measured + Indicated + Inferred Resources</b>					
<b>Copper Cut-off grade %</b>	<b>Million Tonnes</b>	<b>Cu %</b>	<b>Au g/t</b>	<b>Cu metal '000 tonnes</b>	<b>Au metal '000 Oz</b>
0.1	49.1	0.34	0.34	164.9	535.9
0.2	35.1	0.41	0.41	144.0	462.6
0.3	23.2	0.49	0.51	114.5	377.5
0.4	13.5	0.60	0.63	80.9	275.2
0.5	8.3	0.69	0.75	57.5	201.2
0.6	5.2	0.78	0.83	40.8	139.5
<b>Measured Resource</b>					
0.1	41.4	0.34	0.35	141.4	462.5
0.2	30.2	0.41	0.42	124.6	404.6
0.3	20.0	0.50	0.51	99.4	330.6
0.4	11.9	0.60	0.64	71.0	245.1
0.5	7.3	0.69	0.77	50.3	178.9
0.6	4.5	0.78	0.84	35.5	123.3
<b>Indicated Resource</b>					
0.1	5.9	0.33	0.33	19.1	62.9
0.2	4.1	0.40	0.40	16.5	53.0
0.3	2.8	0.48	0.50	13.1	44.1
0.4	1.4	0.60	0.63	8.4	28.5
0.5	0.9	0.69	0.73	6.2	21.4
0.6	0.6	0.76	0.81	4.6	15.6
<b>Inferred Resource</b>					
0.1	1.8	0.24	0.19	4.3	10.6
0.2	0.8	0.38	0.20	2.9	5.0
0.3	0.4	0.50	0.21	2.0	2.7
0.4	0.2	0.62	0.21	1.4	1.5
0.5	0.1	0.75	0.23	0.9	0.9
0.6	0.1	0.89	0.23	0.7	0.5

Table 2: Higher Profit Resources



# GOLDEN CROSS RESOURCES LTD

ABN 65 063 075 178

## Corporate Directory

### Board of Directors

Chris Torrey	Chairman
Kim Stanton-Cook	Managing Director
Li Xiaoming	Non-Executive Director
Jingmin Qian	Non-executive Director
Suzanne Qiu	Non-Executive Director
David Timms	Non-Executive Director
Li Yan	Alternate Director for Mr Li

### Company Secretary

Simon Lennon

### Issued Share Capital

Golden Cross Resources Ltd has 1,361 million ordinary shares on issue which are listed on the ASX.

### Share Registry

Boardroom Pty Limited  
Level 7

207 Kent Street  
Sydney NSW 2000

Phone (61 2) 9290 9600

Fax (61 2) 9279 0664

### Registered Office

Golden Cross Resources Ltd  
22 Edgeworth David Avenue  
Hornsby NSW 2077  
Australia.

Phone: (61 2) 9472 3500

Fax: (61 2) 9482 8488

[www.goldencross.com.au](http://www.goldencross.com.au)

**Please direct shareholding enquiries to the Share Registry.**

### About Golden Cross Resources Ltd

Golden Cross Resources (ASX:GCR) is a mineral explorer with a copper-gold focus. Its major project is the Copper Hill copper-gold deposit in central NSW. GCR also has many other high quality projects across Australia as well as prospective joint ventures funded and managed by GCR's partners.

The Copper Hill Resource, (Lewis Mineral Resource Consulting, ASX announcement 13 Dec. 2011) of 153 million tonnes, contains 511,000 tonnes of copper and 1.35 million ounces of gold. The initial 30 million tonne planned open pit contains 120,000 tonnes copper and 480,000 ounces of gold.

Future drilling efforts will be aimed at extending the size and grade of the mineralisation. Metallurgical studies are continuing to maximise copper and gold recoveries.

Completion of the Scoping Study was achieved at the end of 2011 with a Feasibility Study, acceptable to financiers, now scheduled for mid-2012. Now the Scoping Study review is complete, GCR has more certainty regarding the potential for the project to become an operating mine. Studies are on-going and remain encouraging.

### About China United Mining Investment Corporation (CUMIC)

CUMIC is a privately owned, Beijing-based investment company specialising in mineral and mining investment. CUMIC has a portfolio of exploration and mining assets in various parts of the world, focusing on iron, copper and gold. CUMIC developed and controls the Mongolia Eleet River Iron and Steel Company, a major iron ore mining company.

