



# CARBINE RESOURCES

# Mount Morgan Gold & Copper Project

### <u>Advancing toward production:</u> <u>Re-starting Mount Morgan operations</u>

Queensland Exploration Council Forum 24<sup>th</sup> February 2015

### Disclaimer

#### **Mineral Resources**

The Indicated and Inferred Resources referred to above were presented by Norton Gold Fields Limited at the Mining 2009 Resource Convention (Brisbane). The presentation was released to the ASX on 28 October 2009 and is available for viewing on the Norton Gold Fields website (www.nortongoldfields.com.au). The resources were stated to have been prepared in accordance with the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code") by Competent Person Troy Lowien, Resource Geologist, of consultants Coffey Mining Pty Ltd.

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#### **Exploration Targets**

Carbine has identified an Exploration Target at the site comprising low grade mullock dumps, slag dumps and retreated tailings from previous operations. In the Table above a range of approximate tonnage and grade has been compiled from extensive review of historic reports and studies by previous owners. Carbine has not yet completed any exploration activity on the Exploration Target. The potential quantity and grade of the Exploration Target is conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource, and it is uncertain if further exploration will result in the estimation of a Mineral Resource. The basis for the estimates of tonnage and grade include historic production records, various topographic and volume surveys, drilling by various methods, grab and channel sampling and small scale bulk sampling. Carbine proposes to further evaluate the Exploration Target during the next year by drilling and possible bulk testing to provide material for additional metallurgical test work and to verify tonnage and grade.

#### **Competent Person Statement**

The information in this report that relates to the Exploration Target is based on information compiled by Lance Govey, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Lance Govey is an independent geological consultant and has no association with Carbine Resources Limited other than being engaged for services in relation to the preparation of parts of this report. Lance Govey has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Lance Govey consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. This was initially release to the ASX on 13 November 2014 and has not materially changed since it was last reported.

The information in this report that relates to the Mineral Resources of the Mount Morgan Mine project was prepared in accordance with the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code") by Troy Lowien, Resource Geologist, of consultants Coffey Mining Pty Ltd, who is a Member of The Australasian Institute of Mining and Metallurgy ("AusIMM") and has a minimum of five years of experience in the estimation, assessment and evaluation of Mineral Resources of this style and is the Competent Person as defined in the JORC Code. Troy Lowien conducted the geological modelling, statistical analysis, variography, grade estimation, and report preparation. This report accurately summarises and fairly reports his estimations and he has consented to the resource report in the form and context in which it appears. This information was prepared and first disclosed under the JORC Code 2004. It has not been updated to comply with the JORC Code 2012 on the basis that the information has not materially changed since last reported.



### "Geologically de-risked assets that require process de-risking"



Significant Resource Base

#### Up to +1Moz Au & 80,000t Cu tailings resources

Additional in-situ resource potential

Robust Project Economics

- Scoping Study outlines highly profitable operation
- Projected All-In Sustaining Costs US\$393/oz



- Minimum 8yr mine life (current JORC resources only)
- Potential for 25yr+ operations

Strong Financial Position

#### **Offtake agreement for Pyrite by-product sales**

Carbine fully funded through to decision to mine



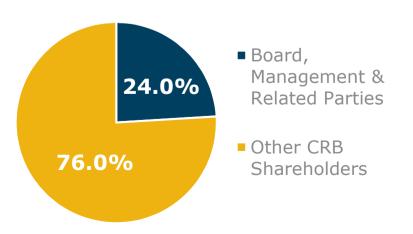
### Carbine Resources Snapshot



Capital Structure		Board & Management		
Shares (ASX: CRB)	140 million	Patrick Walta	Executive Director	
Unlisted Options (\$0.05 - \$0.20)	28 million	Evan Cranston	Non-Exec Director	
Market Capitalisation (@ \$0.048/share)	\$6.7M	Tom Bahen	Non-Exec Director	
Cash & Deposits (31 Dec 2014)	\$4.2M	Rod Smith	Chief Metallurgist	
Enterprise Value	\$2.5M	Russell Dann	Project Specialist	

#### Share Price History (post acquisition)



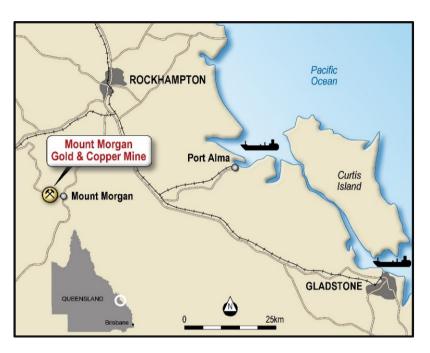


**Significant Shareholders** 

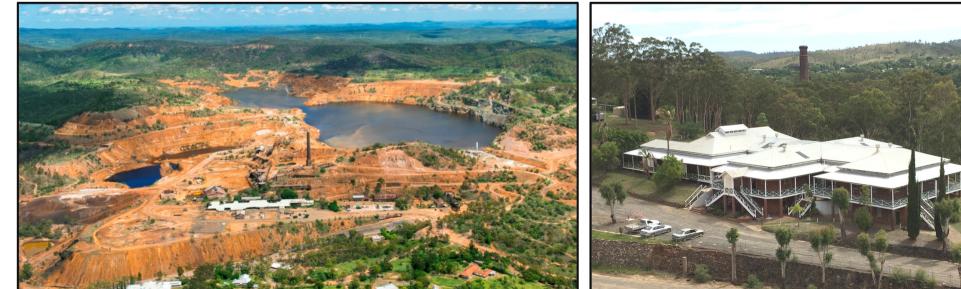
# Mount Morgan Mine Overview



- Significant historical mine site
- Close proximity to cities, ports & rail
- Deposit mined for ~100 years
- Production 8.4Moz Au, 400kt Cu, 1.2Moz Ag
- Large defined tailings resource remains
- Environmental legacy owned by QLD gov



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# 1Moz+ Au Remaining in Tailings



JORC RESOURCES		Tonnes (000s)	Au (g/t)	Cu (%)	Au (oz)	Cu (t)
Indicated		2,487	1.59	0.16%	127,000	3,900
Inferred		5,861	1.07	0.14%	202,000	8,400
TOTAL JORC		8,348	1.23	0.15%	329,000	12,300
EXPLORATION TARGETS*		Tonnes (000s)	Au (g/t)	Cu (%)	Au (oz)	Cu (t)
Tailings	(low range)	2,900	1.45	0.13%	135,000	4,000
	(high range)	3,280	1.66	0.18%	175,000	6,000
Mullock Dumps	(low range)	1,750	1.69	0.11%	95,000	2,000
	(high range)	2,500	2.00	0.15%	162,000	4,000
Metallurgical Slag	(low range)	1,850	0.60	0.43%	36,000	8,000
	(high range)	6,000	1.00	0.69%	193,000	41,000
Open Pit Tails	(low range)	25,300	0.52	0.09%	423,000	23,000
	(high range)	28,000	0.54	0.09%	486,000	25,000
TOTAL EXP. TARGE	ET (low range)	31,800	0.67	0.11%	690,000	36,500
	(high range)	39,800	0.79	0.19%	1,015,000	76,500

Independent resource verification (Coffey & SMG)

Drilling Underway - JORC upgrading and definition of Exp. Targets

\* The potential quantity and quality in these exploration targets are conceptual in nature, there has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource

## Currently Drilling on Site





*Continuing to upgrade JORC resources and confirm Exploration Targets* 

Acquiring further metallurgical samples for feasibility testwork





### Mount Morgan Historical Tailings Operations (1981-1991)

- 1981 1991: 28Mt tailings processed via 3Mtpa Carbon-in-Leach (CIL) plant
- Excess cyanide consumption caused by soluble copper
- Operations ceased due to increased copper and falling gold price (<US\$350/oz)</li>

### Norton Gold Fields Feasibility Study (2010)

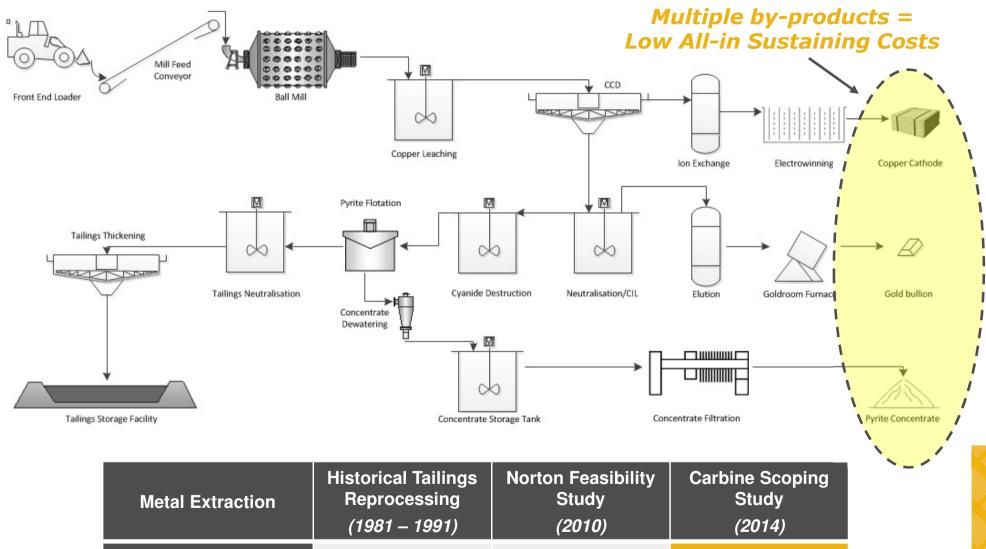
- Gold CIL flowsheet with pyrite recovery (secondary revenue stream)
- GFC, financial issues & focus on WA assets hampered progress
- Soluble copper remained a central issue to operating costs

#### **Carbine's Process Solution: Reverse Leach IX – CIL**

- Selective removal of copper prior to gold CIL extraction
- Decreased cyanide consumption in gold circuit
- Additional revenue stream from copper production
- Increased gold recoveries (reduced competition with copper)

### Carbine's Process Solution





	(1981 – 1991)	(2010)	(2014)
Gold	50 - 55%	65%	78%
Pyrite	-	86%	91%
Copper	-	-	56%



#### **Parameters**

Parameter	Value	Notes
Mine Life	8 years	JORC resources only
Annual Throughput	1,000,000 t/yr	Based on available JORC resources
Production		
Gold	36,000 oz/yr	
Copper	850 tpa	High grade resources targeted during initial years of operations
Pyrite	230,000 tpa	

#### Results

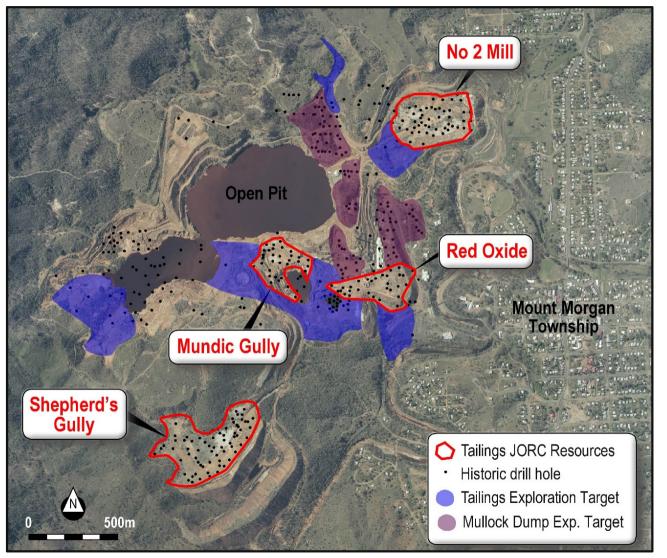
Parameter	Value	Notes
Capital Costs	A\$ 81.9M	Assumed new plant construction
Operating Costs	A\$ 32.2/t	
All-in Sustaining Costs	US\$ 393/oz	Life of mine

\* Note: Metal Prices: gold US\$1,250/oz, copper US\$7,000/t, pyrite US\$86/t. Ex. Rate \$0.85



# Simple Mining Operations





### **Tailings & Mullock**

- Easily identified & extensively drilled
- Confined by natural gullies
   & retaining walls
- Deposition history from historical operations

### **Mining Operations**

- Planned dry mining
- Truck & loader operation
- Potential for hydraulic mining



#### Landmark Principal Offtake Agreement for Pyrite

- Principal agreement for mine gate sales (non-exclusive)
- Talana Limited: Large global distributor of industrial minerals
- Potential to increase scope to include copper products & raw material supply

#### **Conditional Agreement Terms**

Production:	200 – 300ktpa
✓ Grade:	$\pm 50\%$ Sulphur
Price:	$\pm$ US\$100/t CFR



Confirms value potential of pyrite sales

Validates Scoping Study All-in Sustaining Costs of US\$393/oz

### Achieving Project Milestones



	2014			2015				2016+	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Project DD & Acquisition		$\checkmark$							
Phase 1 Testwork			$\checkmark$						
Phase 2 Testwork				$\checkmark$					
Scoping Study				$\checkmark$					
Drilling Program									
Phase 3 Testwork									
Preliminary Feasibility Study							>		
Bankable Feasibility Study									
Detailed Plant Design									
Construction & Operations									

- All key milestones achieved within prescribed timeframes
- Continuing to aggressively pursue development milestones

# Additional Assets



#### **Kundana CIP Plant**

- 1Mtpa gold CIP plant
- Originally intended for use at Mount Morgan
- Plant refurbishment (\$3.5M spent by NGF)
- Plant remains packed at Paddington Mine, WA
- Potential for:
  - full or partial reuse at Mount Morgan
  - domestic or international sale

### Many Peaks Copper Deposit

- QLD prospective Cu/Au exploration ground with historical operations
- Historical mining of 500,000 @ ~2% Cu
- Significant resource definition potential
- Mining leases in place
- Desktop study underway to review potential



*Kundana CIP Plant prior to decommissioning & refurbishment* 

### Kundana CIP (Pre-Refurb.)





Assessing suitability for full or partial utilisation of the Kundana CIP Plant at Mount Morgan





#### Cash flow strategy targeting near term production

- Large resource of up to +1Moz gold with significant copper & pyrite credits
- Predicted robust project economics with by-product sales
- Engagement of key offtake & technical partners
- Government R&D Rebate provides 45% refund on project expenditure

### **Carbine's planned course of action**

- Phase 1 & 2 testwork (technical viability confirmation)
- Scoping study (economic potential confirmation)
- Drilling & JORC definition of exploration targets
- Phase 3 testwork & Preliminary Feasibility Study

(COMPLETED) (COMPLETED) (Due Mar 2015) (Due July 2015)

Carbine remains fully funded to decision to mine (\$4.2M cash & deposits)



Patrick Walta Executive Director	<ul> <li>Metallurgist &amp; mineral economist, commercial &amp; tech. mining experience</li> <li>MD of Raging Bull Mining &amp; Former CEO of Cradle Resources Limited</li> <li>Experience in mineral resource dev, M&amp;A, project management</li> </ul>
Rod Smith Chief Metallurgist	<ul> <li>Extractive metallurgist with 40 years' experience in metallurgical R&amp;D</li> <li>Former Managing Director of Ammtec Laboratories Limited</li> <li>Vast experience in gold, base metals, rare earths &amp; uranium extraction</li> </ul>
Russell Dann Project Specialist	<ul> <li>Former Regional Director – QLD Department of Mines &amp; Energy</li> <li>Long association with development &amp; remediation of Mount Morgan</li> <li>Significant experience with mine approvals and stakeholder relations</li> </ul>
Evan Cranston Non-Exec Director	<ul> <li>Lawyer specialising in corporate and mining law</li> <li>Former Executive Director of gold explorer Ampella Mining</li> <li>Current Director of Attila Resources, Boss Resources &amp; Cradle Resources</li> </ul>
Tom Bahen Non-Exec Director	<ul> <li>Current Director of Private Clients &amp; Inst. Sales at Paterson Securities</li> <li>Significant experience in capital raisings &amp; corporate advisory</li> <li>Previous experience in assurance and advisory with Deloitte</li> </ul>

#### **Carbine Resources Limited**

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#### Contact

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