



September 2017 Quarterly Report

KEY POINTS

- ◆ **Company signs binding pyrite offtake agreement for its Mount Morgan Project in Queensland (ASX: 2 August 2017)**
 - ◆ **Offtake agreement with experienced Chinese trading house, IKing International Limited**
 - ◆ **Agreement contains a guaranteed floor price with profit sharing for prices greater than the floor price – floor price negotiated on an annual basis and agreement is for a minimum of 85% of the concentrate for first three years of the Project**
- ◆ **Outstanding results achieved with completion of the Demonstration Plant test work (ASX: 25 October 2017)**
 - ◆ **Results confirm proposed process flow sheet will deliver the technical and economic outcomes outlined in the Feasibility Study (ASX: 8 December 2016 & 9 May 2017)**
 - ◆ **Results will now be included in the final design criteria, front end engineering and a revised economical model**
- ◆ **Progression of remaining regulatory approval being the EA amendment**
- ◆ **Progression of submission for financial support from Queensland Government \$130 million Jobs and Regional Growth Fund**
- ◆ **Continuation of discussions with potential project financiers**
- ◆ **Carbine and Cement Australia trialing suitability of Mount Morgan slag for cement manufacturing (ASX: 28 August 2017)**

Carbine Resources Limited's (ASX: CRB) Feasibility Study on the Mount Morgan Gold-Copper Project in central Queensland demonstrated a strong base case for the development of a low cost, long-life project (ASX: 8 December 2016).

The Feasibility Study Base Case assumed a 1.1mtpa throughput rate over a 9.5 year mine life. The estimated Ore Reserve is associated with just four of the historical tailings dumps at Mount Morgan delivering gold, copper sulphate and premium unroasted iron pyrite concentrate to market. Additional to the Feasibility Study base case, the Company presented a 20 year expanded case using the same annualised production rate.

Following on from the Feasibility Study's strong technical and financial outcomes, Carbine continues to advance the required regulatory approvals, pyrite offtake agreement, front end engineering and design (FEED), and project funding.



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Working with GR Engineering Services (GRES), the Company has successfully completed the demonstration plant test work associated with the FEED work and the results of this work will be used in progressing the project into the construction phase on completion of the final project approvals and financing.

The Company also continued its background work with the Queensland Government in respect to the submission to the Queensland Government for financial support from the Jobs and Regional Growth Fund for the development of the Mount Morgan Project. The \$130 million Jobs and Regional Growth Fund is part of the Government's broader \$200M Jobs and Regional Growth Package, targeted at growing regional economies and jobs for Queenslanders. The Company's application is currently being assessed for consideration. Further detail about the Jobs and Regional Growth Fund can be found on the website, www.statedevelopment.qld.gov.au/industry/industry-support/jobs-and-regional-growth-fund

Pyrite Offtake Agreement

During the quarter, the Company signed a binding offtake agreement for its pyrite production from the Mount Morgan Project with Chinese trading company, IKing International Limited (IKing) (ASX: 2 August 2017).

The agreement with IKing contains a guaranteed floor price for all the pyrite concentrate delivered with a profit-sharing mechanism for prices achieved greater than the floor price. The floor price will be negotiated on an annual basis and the agreement is for a minimum of 85% of the concentrate produced for the first three years. The detailed pricing terms associated with the IKing agreement remain confidential due to its commercial sensitivity. However, based on the current and forecast market conditions, the Company expects to receive at least \$US 50/t for the first two years of the Project and greater than \$US 70/t for the remaining years. The pyrite price expected to be received will impact the AISC of \$A 549/oz achieved in the Feasibility Study (ASX: 8 December 2016) and the Company will provide further guidance on this once the FEED work has been completed (ASX: 9 May 2017).

IKing International Limited is a Shanghai-based trading company specialising in the Chinese import markets for iron ore and other specialised trading commodities. IKing's trading activities for the import of iron pellets into China has enabled the company to establish significant contacts and working relationships in the iron and steel industries. Iking provides a key pathway for commodity producers into the large domestic Chinese markets. Further information on IKing can be found at www.ikingintl.com

The pyrite concentrate offtake agreement with IKing has been established to enable the Company to gain access to the largest pyrite roasting market in the world to ensure that all of the pyrite produced at Mount Morgan can be sold. With China consuming over 16Mt of pyrite on an annual basis and the largest 10 consuming roasting facilities processing over 5Mt of pyrite on an annual basis, the market presents itself as a logical entry point supported by lower shipping costs in direct comparison to the European market. The agreement was structured to establish a floor price to protect project risk associated with any economic down side potentially associated with declining iron, sulphur or sulphuric acid prices and to enable both the Company and IKing the opportunity to participate in any upside pricing resulting from higher iron, sulphur or sulphuric acid prices.

A significant factor in establishing the agreement with IKing is to get direct access to the Chinese pyrite market where they determine their pricing and business models on the price of iron fines generated as a product from the pyrite roaster. The pyrite roasting companies in discussion with IKing are subsidiary companies or close neighbors of some of the largest steel manufacturers in the world. The iron residue (typically between 62-65% Fe) is sold to the steel manufacturers at a discount to the spot iron fines price. They also obtain power



credits by utilising the heat generated from roasting the sulphur for the production of sulphuric acid to drive steam generators for the surrounding petrochemical and steel plants. From Carbine's perspective, this pricing model reduces the risk of being directly reliant on the sulphuric acid market.

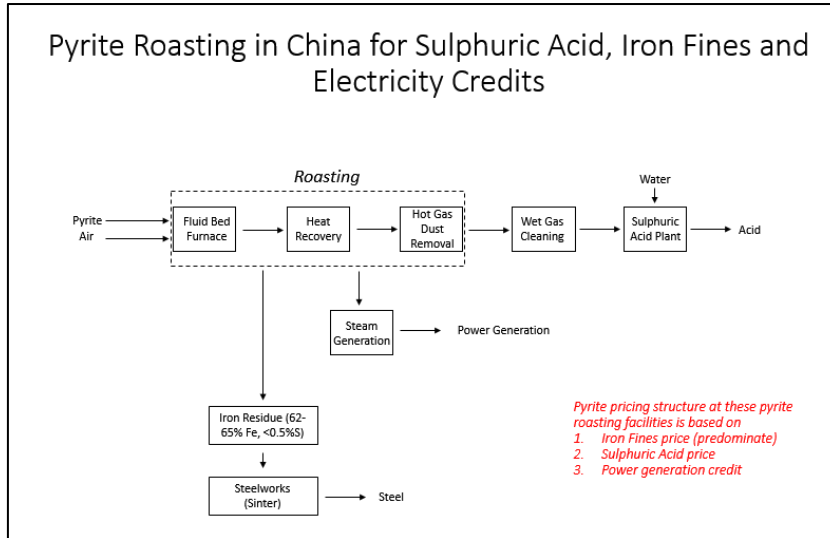


Figure 1: Flowsheets for a pyrite roasting facility producing iron fines, sulphuric acid and electricity generation.

Carbine has also appointed Dr Li Cheng as its senior marketing consultant. Dr Li was educated in the United Kingdom and has worked in many senior roles including AVIC Shangda Superalloys Company, Shanghai Streamex Metal Processing Company, ELG Haniel Corporation, China Metallurgical Imports and Exports Corporation and Shanghai Non-ferrous Metals Research Institute. Dr Li's unique skill set and superior knowledge of the China trade markets and business culture provide a detailed understanding of Chinese metals and petrochemicals market and he will oversee the Company's relationship with Iking.

The evaluation by the Company of the pyrite market in China identified a lower risk opportunity to provide Mount Morgan concentrate initially into the Chinese sulphuric acid market. The reduced risk profile is underpinned by the reduced shipping distance, the price of iron ore fines and the ability to establish long term large volume arrangements.



Figures 2 & 3: The 0.5Mtpa Pyrite roasting facility and the iron residue stockpiles at the Jiheng Lantian Chemical Company, in Hebei Province China.



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As previously outlined in the FS, world trade figures show that the imports and exports of pyrite concentrate have been dominated on the supply side by the Pyhäsalmi Mine in Finland (First Quantum) and on the demand side by sulphuric acid manufacturing roasters in China. In 2015 China imported 859,000 tonnes of unroasted iron pyrite. Of this material, 72% (616,000 tonnes) came from the Pyhäsalmi Mine. The Pyhäsalmi Mine is a deep (1,400m) underground mine that produces copper, zinc and pyrite concentrate. The pyrite concentrate produced is very similar to the concentrate that will be produced from Mount Morgan. The Pyhäsalmi Mine is expected to commence closure in 2019 due to the lack of reserves.

Successful completion of Demonstration Plant test work

The Company has recently completed the Demonstration Plant test work confirming the proposed process flow sheet will deliver the technical and economic outcomes outlined in the Feasibility Study (ASX: 8 December 2016 & 9 May 2017).

The results form an integral part of the Front End Engineering and Design (FEED) work currently being completed by GR Engineering Services (GRES). The Company will complete a revised economic model on the Project as a result of this work, along with the new pyrite offtake arrangements, updated commodity prices and exchange rate forecasts. This revised economic model will form a key part of Carbine's discussions with potential financiers.

The Demonstration Plant work has taken five months to complete and a short video showing the work completed and an overview discussion recorded by the Sophisticated Investor can be viewed on the Carbine Resources website – www.carbineresources.com.au

The Mount Morgan process flow sheet consists of five steps within in the circuit being:

1. Ore preparation and handling using representative sample of the tailings to be mined and processed
2. Resin in pulp (RIP) recovery of acid soluble copper
3. Pyrite flotation and recovery
4. Gold extraction by cyanide leaching and recovery
5. RIP recovery of cyanide and copper from tailings stream for copper recovery and cyanide reuse

A high level results comparison between the Feasibility Study and the Demonstration Plant are summarised in the Table 1 below. The Demonstration Plant ore feed represents the blend that was determined in the Feasibility Study for processing over the first three years of the Project.

The Demonstration Plant work was designed to confirm the individual parts of the flow sheet and the continuity of the process from section to section in a repetitive process. The demonstration validates the previous Feasibility Study work and confirms that in a continuous and repetitive basis no unexpected chemical or metallurgical reactions compromise the flowsheet design and objectives.



Table 1: Comparison between the Feasibility Study and the Demonstration Plant

Description	Feasibility Study (2016)	Demonstration Plant (2017)	Comment
ORE FEED BLEND	Years 1-3 ¹	50% No 2 mill, 40% Mundic & 10% Red Oxide	Sample representative of 1 st 3 years of ore blend
Gold (g/t)	1.66 ²	1.76	
Copper (%)	0.15 ²	0.16	
Pyrite Eq(wt%)	21.3 ²	23.6	
COPPER RIP			
Copper solution grade before RIP (mg/L)	662	547	
Copper solution grade after resin loading (mg/L)	0.0	3.8	No indication of higher than normal resin degradation
PYRITE FLOTATION			
Flotation concentrate pyrite grade (%)	93	92	
Pyrite concentrate sulphur grade (%)	50	50	
Pyrite concentrate iron grade (%)	43	43	
GOLD CIL			
Gold solution grade before CIL (ppm)	1.06	1.04	
Gold solution grade after carbon loading (ppm)	0.02	0.08	
Gold residue grade before CIL (ppm)	0.2	0.3	
Gold residue grade after carbon loading (ppm)	0.2	0.3	
CYANIDE RIP			
Cyanide solution grade in gold tailings (ppm)	471	600	
Cyanide solution grade after resin loading(ppm)	28	20	No indication of higher than normal resin degradation
Copper solution grade in gold tailings (ppm)	254	189	
Copper solution grade after resin loading (ppm)	0.25	15	No indication of higher than normal resin degradation

Table Notes: 1 – Table 10 Mount Morgan FS processing physicals (ASX: 8 December 2016), 2 – Weighted average of years 1-3 table 10 Mount Morgan FS processing physicals (ASX: 8 December 2016).

The Demonstration Plant work was conducted at the ALS laboratory in Balcatta, Perth Western Australia (ASX: 9 May 2017). New composite ore feed samples were collected from Mount Morgan (500kg tailings sample) along with 2,000L of open pit water (intended process water) and transported to Perth for the work. The ore feed sample was sourced from RC chip samples collected in the Company's 2015 and 2016 drilling campaigns.



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The Demonstration Plant test work was separated into 5 different work streams which culminated in a semi-continuous demonstration of the flow sheet. Each work stream is outlined as follows.

1. Receive composite sample from site and prepare for test work and carry out baseline assays. Conduct initial batch CIP, RIP and detox tests for the various minerals.
2. Complete batch test work including, grinding, bulk flotation, thickening, open vat leaching, sealed bottle rolls and sealed reactor tests.
3. Batch testing associated with CIP, A500 & A100 resin RIP, detox, multiple contact resin loading tests and resin strength and integrity tests.
4. Ore feed test work including screening, grindability and mineralogy. Final establishment and set up of Demonstration Plant. Commence demonstration plant including copper RIP, pyrite flotation and gold CIL.
5. Demonstration Plant continuation for cyanide/copper RIP recovery and recycle analysis.

The Company is currently waiting for all the test work results to be finalised and then in conjunction with GRES will revise the project design criteria (PDC) and metallurgical balances. This will allow GRES to confirm both the plant capital and operating costs prior to the company updating the economic model for the project.

During the Demonstration Plant work Carbine and GRES technical officers were able to visit a successfully operating resin plant being used for the extraction of cyanide as planned for the Mount Morgan Project. The plant is located at the Mirah Gold mine in Indonesia where Green Gold Engineering has installed the resin circuit.



Figure 4: Mirah Gold Mine cyanide recovery resin circuit.



Regulatory Approvals

The three significant approvals required for the development of the Mount Morgan Project are the Development by the State Application under section 71 of the Queensland Heritage Act 1992 (Heritage), the Regional Interests Development Approval (RIDA) and the Environmental Authority (EA) amendment. The company has received approval of the Heritage and Regional Interests Development applications (ASX: 27 April 2017 & 28 July 2017). The EA amendment is still to be finalised.

The Environmental Authority (EA) draft amendment was originally submitted to the Department of Environment and Heritage Protection (DEHP) on 7 April 2017. In ongoing discussions with the DEHP and the Department of Natural Resources and Mines (DNRM), the submission is currently being re-worked to better reflect and relate to the two existing agreements between Carbine and the DNRM. The existing agreements are the mining rights agreement (Mount Morgan Phase 2 Agreement) and the water treatment plant (WTP) agreement (retrofit and management of water treatment plant). The DNRM is currently responsible for any water discharge from the WTP into the Dee River.

The revised amendment application includes moving the processing plant to Sandstone Gully, resizing and design of the new Tailings Storage Facility (TSF), and the inclusion of mining and processing of the Shepherds Gully Ore Reserve. Once the finalised EA is received, a new Program of Works (PoW) will be established as the EA was previously approved for the project in 2010.

Discussions will continue between the Carbine, DNRM and DEHP on the interaction of the existing agreements between the parties in line with any ongoing approvals and operating requirements. The alignment of the various agreements and operating requirements will further enhance the projects commercial, environmental, and community objectives/outcomes.

Slag Testing to Commence

In August 2017, an agreement was reached between Carbine and Cement Australia Pty Ltd to conduct a trial on the suitability of Mount Morgan slag for the purposes of cement manufacturing. A 1,000t parcel will be taken from Mount Morgan to Gladstone during the next quarter as a trial. The site has over 6.5 million tonnes of slag of which 2.9 million tonnes will be mined as waste sitting above the Red Oxide tailings.

Water Treatment Plant (WTP)

During the quarter, the Company continued to work with the DNRM on operational improvements to the Mount Morgan WTP. The operation of the WTP and its relationship to the larger Mount Morgan project is part of the ongoing discussions between Carbine, DNRM and DEHP as discussed in the above Regulatory Approvals section.



Corporate Activities

Raging Bull Option Extension

In order to complete the work associated with FEED demonstration plant work and the EA amendment application prior to making a decision on the Raging Bull Mining option (ASX: 24 March 2017), the Company has agreed to extend the timeframe for the terms with Raging Bull Mining Pty Ltd for the acquisition of the remaining 25% of the Mount Morgan Project by 6 months to 23 March 2018. Payment for the extension was by the issue of \$200,000 worth of Carbine shares to Raging Bull nominees. The share issue is offset by a reduction in the value of the consideration payable on exercise of the option, with the original agreed payment of \$2.3 million now reduced to \$2.1 million. The option exercise payment remains payable in Carbine shares or cash (or a combination) at the election of Carbine.

Norton Goldfields and Carbine

The Company has continued discussions with Norton Goldfields in regards to the Mining Property Sale Agreement it has with Raging Bull Metals. Carbine will require title transfer to fund and develop the project.

Mount Morgan Project Financing

Discussions have continued with financiers who have expressed interest in providing finance for the project development. A successful financing outcome is dependent amongst other things on obtaining all project approvals, and moving to 100% project ownership.

For further information, please contact:

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Competent Person Statements

Ore Reserves

The information in this report that relates to Mineral Reserves for Mount Morgan is based on, and fairly represents, information and supporting documentation prepared by Mr. A James, who is a Competent Person according to the JORC 2012 Code. Mr. A James is a fulltime employee of Carbine Resources as the Managing Director of the Company and he holds shares in the Company. He is a Fellow of the Australasian Institute of Mining and Metallurgy. He has sufficient experience that is relevant to the style of mineralization and the 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 Exploration Results, Mineral Resources and Ore Reserves'. The information is extracted from the ASX report entitled 'Feasibility Study Delivers 2 Year Payback – AISC \$549/oz' created on 8th December 2016, and is available to view on the Carbine Resources website. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant



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market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Exploration Targets, Exploration Results, Mineral Resources

The information in this report that relates to Exploration Targets, Exploration Results and the Inferred Mineral Resources for Mount Morgan In-Pit and Sandstone Gully is based on, and fairly represents, information and supporting documentation prepared by Mr. C Newman, who is a Competent Person according to the JORC 2012 Code. Mr. C Newman is a fulltime employee of Carbine Resources and a Fellow of the Australasian Institute of Mining and Metallurgy. He has sufficient experience that is relevant to the style of mineralization and the 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 Exploration Results, Mineral Resources and Ore Reserves'. The information in this report is extracted from previous company releases 'ASX: 16 August 2016 and 30 August 2016', and is available to view on the Carbine Resources website. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The information in this report that relates to the Mineral Resources for Mundic Gully, Shepherds Gully, No 2 Mill and Red Oxide is based on information compiled by Dr M. Abzalov, who is a Competent Person according to the JORC 2012 Code. Dr M. Abzalov is a Fellow of the Australasian Institute of Mining and Metallurgy. He has sufficient experience in estimation of resources of gold mineralisation, and has a strong expertise in the all aspects of the data collection, interpretation and geostatistical analysis to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves'. Dr M. Abzalov is independent consultant, contracted to Carbine Resources for providing the technical guidelines for resource definition drilling at the Mount Morgan tailings project and in estimating the Mineral Resources. The information in this report is extracted from previous company releases 'ASX: 18 July 2016, 27 July 2016, 1 August 2016 and 9 August 2016, and is available to view on the Carbine Resources website. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.



Appendix 1: Carbine's Tenement Interest

The following information is provided pursuant to Listing Rule 5.3.3 for the quarter ended 30 September 2017:

Mount Morgan, Queensland	Tenement Reference	Interest
	ML5628	Option to Acquire 100%
	ML5613	Option to Acquire 100%
	ML5616	Option to Acquire 100%
	ML5660	Option to Acquire 100%
	ML5608	Option to Acquire 100%
	ML5617	Option to Acquire 100%
	ML5609	Option to Acquire 100%
	ML5619	Option to Acquire 100%
	ML5602	Option to Acquire 100%
	ML5618	Option to Acquire 100%
	ML5658	Option to Acquire 100%
	ML5635	Option to Acquire 100%
	ML5622	Option to Acquire 100%
	ML5620	Option to Acquire 100%
	ML5623	Option to Acquire 100%
	ML5627	Option to Acquire 100%
	ML5615	Option to Acquire 100%
	ML5589	Option to Acquire 100%
	ML5659	Option to Acquire 100%
	ML5634	Option to Acquire 100%
	ML5626	Option to Acquire 100%
	ML5633	Option to Acquire 100%
	ML5621	Option to Acquire 100%
	ML5624	Option to Acquire 100%
	ML5625	Option to Acquire 100%
	ML6692	Option to Acquire 100%
	ML5612	Option to Acquire 100%
	ML5649	Option to Acquire 100%
	ML5614	Option to Acquire 100%
	ML5648	Option to Acquire 100%
Many Peaks, Queensland		
	ML3640	Option to Acquire 100%
	ML3641	Option to Acquire 100%
	MDL30	Option to Acquire 100%

No interests were acquired or disposed of during the quarter.