

ASX / MEDIA ANNOUNCEMENT

19 November 2014

# MOUNT MORGAN SCOPING STUDY CONFIRMS POTENTIAL FOR A LOW COST LONG LIFE OPERATION

# Highlights

- Positive Scoping Study identifies potential for a highly economic operation
- US\$393/oz All-in Sustaining Costs for life of mine
- Minimum 8 year mine life based on current JORC resources only
- Opportunity to exploit high grade resources for the initial years of operation
- Scoping Study to be upgraded on completion of further resource drilling
- Feasibility Study to be initiated on completion of drilling
- Carbine fully funded through to decision to mine

**Carbine Resources Limited (ASX: CRB)** is pleased to announce the completion of a Scoping Study at the Mount Morgan Gold & Copper Project. The Study parameters, developed by Ausenco Services Pty Ltd in addition to other specialist engineering firms, have provided suitable inputs to define the potential for a long life, low cost operation at the Project.

The Scoping Study has provided independent preliminary verification of the potential viability of the proposed operations, indicating robust economics for the Project. Further feasibility development is now required in order to confirm and refine the estimates generated from this Study.

# **Scoping Study Results**

Parameter	Units	Value				
PRODUCTION PARAMETERS						
Throughput	tonnes/yr	1,000,000				
FINANCIAL PARAMETERS						
Capital Costs	A\$M	\$81.9M				
Operating Costs	A\$/t	\$32.7				
All-in Sustaining Costs	US\$/oz	\$393				

#### Table 1: Scoping Study Production and Financial Results

Carbine plans to complete a resource drilling program at site which is intended to increase the relative percentage of Indicated resources for the Project. This will allow the upgrading of the Scoping Study and release of full Study financial metrics to the market.

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#### **CAUTIONARY STATEMENT**

The Scoping Study referred to in this announcement is based on lower-level technical and economic assessments, and are insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage or to provide certainty that the conclusions of the Scoping Study will be realised.

The Scoping Study is preliminary in nature as its conclusions are drawn on Inferred (70%) and Indicated mineral resources (30%). The relative sequence of mining targets the use of Indicated resources for the initial years of operations until they are exhausted (estimated to be up to three years based on current Indicated resources). The nature of the tailings deposits (unconsolidated material at surface) makes selective targeting of Indicated resources possible.

The Indicated and Inferred resources and Exploration Target outlined in this announcement have been prepared by a competent person in accordance with the JORC Code.

The Company believes it has a reasonable basis for reporting the results of the Scoping Study based partially on Inferred resources due to the nature of tailings deposits and the availability of historical production history and tailings deposition history. The Company has a high degree of confidence that the Inferred resources will be upgraded with further exploration work. There is however currently a low level of geological confidence associated with current Inferred mineral resources, and there is no certainty that further exploration work will result in the determination of Indicated mineral resources or that the production target itself will be realised. The stated production target is based on the Company's current expectations of future results or events and should not be solely relied upon by investors when making investment decisions. Further evaluation work and appropriate studies are required to establish sufficient confidence that this target will be met.

If the Inferred resources are removed, the overall mine life would reduce to approximately three years, i.e. by processing of the current JORC Indicated resources only. Carbine notes that even under this scenario the Project forecasts a positive financial performance. The Company is therefore satisfied that the use of Inferred resources in production target reporting and forecast financial information is not the determining factor in overall Project viability and that it is reasonable to report the Scoping Study including the Inferred resources.

The Scoping Study outputs contained in this report relate to 100% of the Project. Unless otherwise stated all cashflows are in Australian dollars, are not subject to inflation/escalation factors and all years are calendar years.

The Company cautions that there is no certainty that the forecast financial information derived from production targets will be realised. Material assumptions underpinning the production targets and financial forecasts derived from the production targets are set out in this announcement and, in particular, the Forward Looking Statements section.

The Company has concluded it has a reasonable basis for providing the forward looking statements included in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and, in particular, in the Forward Looking Statements & Modifying Factors section of this announcement.



#### Summary

The Scoping Study defines a 1,000,000tpa operation over a minimum 8 year mine life. The nominated mine life only includes the processing of all JORC Resources at the site and does not include any of the current Exploration Target (stated at 32 - 40Mt grading 0.67 - 0.79 g/t Au and 0.11 - 0.19% Cu, see Table 2). This Exploration Target is not a mineral resource and is 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.

The proposed operation produces three separate salable products, namely gold, copper and pyrite. Average annual production is estimated at 36,000oz gold doré bullion, 850t copper cathode and 230,000t of pyrite concentrate.

Capital costs for mine development have been estimated at \$81.9M based on construction utilising all new equipment and includes allowances for all Engineering, Procurement, Construction & Management (EPCM) costs and excludes owner's costs and contingencies. Significant upside exists to reduce capital costs via the use of the Kundana CIP Plant, which is being progressively acquired by Carbine from Norton Gold Fields Limited (see Carbine's ASX release 03 April 2014).

Operating costs for the mine have been estimated at \$32.7/t, of which reagents and consumables represent nearly 47% and labour 25%. Carbine considers these costs to be highly conservative and has already identified a number of cost saving initiatives which are likely improve the overall value proposition of the Project.

All-in Sustaining Costs for the operations are estimated to average US\$393/oz for the life of mine. The low All-in Sustaining Costs are facilitated by the fact that the operation requires minimal mining activity (reclamation of unconsolidated surface tailings only) and also produces two by-product streams, which provide additional revenue and offset operating costs.

Realistic assumptions of long term metal pricing forecasts over the life of the mine (gold US\$1,250/oz, copper US\$7,000/t, pyrite US\$86/t) and an A\$/US\$ average exchange rate of 0.85 were used throughout the Study.



#### **Project Location & Regional Infrastructure**

The historic Mount Morgan Mine is located on the outskirts of the town of Mount Morgan on the central Queensland coast. The town has a population of ~3,000 people and well established infrastructure.

The region is also well populated by the large industrial towns of Gladstone and Rockhampton. These cities are home to several engineering firms, mining equipment suppliers and general contractors.

Gladstone is also home to Queensland's largest multi-commodity port facility and the fourth largest coal exporting terminal in the world.

Gladstone businesses supply raw materials to the region including sodium cyanide, flocculants and sodium hydroxide. There are also a number of limestone and lime producers to the north and south of Rockhampton, within 50km of Mount Morgan, including Cement Australia Limited.

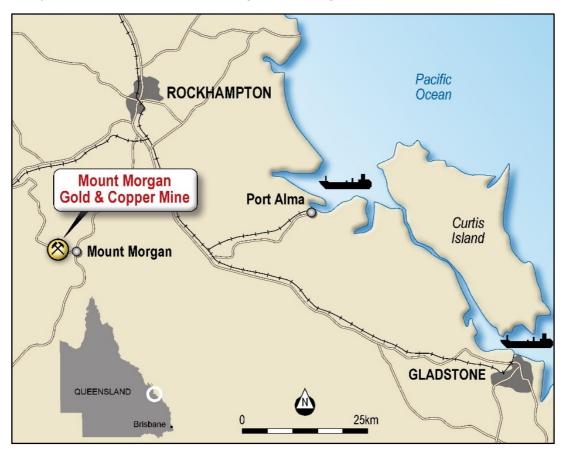


Figure 1: Mine location & proximity to regional cities & ports



#### Mining Lease Tenure & Environmental Legacy Ownership

The Mount Morgan Mine is covered by 30 mining leases spanning 677.5 hectares.

The leases are all current and valid until 31 August 2025.

Freehold title applies to all the operations areas of the mine site.

Native title has been extinguished over the Project area and the operational status of the mining leases means that the potential for review of native title does not arise.

The historical environmental legacy of Mount Morgan is 100% owned by the Queensland Government through the Department of Natural Resources and Mines (DNRM).



Figure 2: Mining leases at Mount Morgan

The mining lease holder is not liable for existing environmental legacy or the impact of past mining activities.

Management of the future mining activities and remediation of the site is governed by the Mount Morgan Phase 2 Agreement between the mining lease holder and the DNRM. The Agreement sets out the rights and obligations regarding the establishment of tailings retreatment operations at Mount Morgan. The Agreement requires the mining lease holder to:

- submit a detailed Plan of Operations before initiating mining activities;
- contribute to the rehabilitation of any area disturbed by its mining activities by removing tailings from that area down to the natural ground level; and
- manage any water in the mining areas.

The Agreement requires the DNRM to:

- maintain all ownership of the environmental legacy for all non-disturbed areas and areas mined down to natural ground level by the mining lease holder;
- maintain current environmental remediation activities; and
- allow the mining lease holder to construct mining & processing infrastructure for operations.

The Phase 2 Agreement therefore allows the mining lease holder to undertake mine development activities and mining operations without exposing itself to the historical environmental liabilities.



### **Mineral Resources & Exploration Target**

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JORC Resources <sup>[1]</sup>	Tonnes	Au	Cu	Au	Cu
(Tailings)	(000s)	(g/t)	(%)	(oz)	(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	<b>0.15%</b>	329,000	12,300
Exploration Target <sup>[2]</sup>	Tonnes	Au	Cu	Au	Cu
(Exclusive of JORC Resources)	(000s)	(g/t)	(%)	(oz)	(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 EXPLORATION TARGET					
(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

Note: Rounding errors occur

<sup>[1]</sup> 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. A competent person statement in relation to these Indicated and Inferred resources is included on the final page of this Announcement.

#### <sup>[2]</sup> Exploration Target

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. A competent person statement in relation to this Exploration Target is included on the final page of this Announcement.



### **Primary Ore Mining & Historical Tailings Reprocessing Activities**

During its operational life, the Mount Morgan Mine produced 8.4Moz of gold, 400,000t of copper and 1.2Moz of silver from the mining and processing of approximately 50Mt of ore.

Mining operations at Mount Morgan were discontinued in 1980 after nearly 100 years of activity.

Following closure of primary ore mining operations, tailings reprocessing of a section of the tailings resource was successfully conducted from 1981 to 1991 via the operation of a 3Mtpa gold carbonin-pulp plant.

The historical tailings operations occurred over a period when average gold prices were US\$395/oz.

The plant treated 28Mt of tailings ore over 10 years, before operations were shut down due to a combination of falling gold price and increased operating costs, caused by the presence of additional soluble copper in the remaining tails.

No mining or processing activity has occurred on site since the shutdown of operations in 1991, after which the DRNM took administration of the site.



Figure 3: Mount Morgan ore processing and tailings deposition (circa 1910)



#### Mining

The proposed tailings operation is primarily about materials handling and minerals processing rather than physical mining activities.

The mineralised tailings comprise material that has been moved and/or treated during past operations and is now stockpiled in dumps or behind tailings retaining walls.

Mount Morgan's historical mining operations were based on a blended feed to the processing plant located on the south east corner of the open pit. This blended feed resulted in the relatively consistent production of tailings grades.

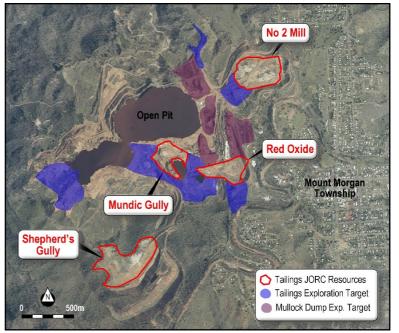


Figure 4: Proposed mining areas at the Mount Morgan

The Scoping Study proposes the use of dry mining via a loader and truck operation, providing a simple and cost effective method for extracting and delivering feed material to the plant. Hydraulic mining will also be assessed during further studies.

A small amount of overburden is located in the Mundic Gully and Red Oxide areas, which will be progressively removed during mining operations. Other tailings require no overburden stripping.

Mining is predicted to be straightforward and low risk. It is proposed that current JORC Indicated resources are targeted in the initial years of operations, providing feed to the plant for up to three years based on current resources. Following this, the current Inferred resources will be mined and processed. The proposed mining sequence is:

- Mundic Gully Tailings
- Red Oxide Tailings
- No. 2 Mill Tailings
- Sandstone Gully Tailings

The use Exploration Target Tailings, Mullock Dumps, Metallurgical Slag and Open Pit Tails (see Table 2) has not been included as part of this Scoping Study announcement. Significant upside remains to the extension of mine life and/or increase of plant throughput should these materials be included in the mining schedule. Carbine will assess the potential for their inclusion in future feasibility work for the Project.

Due to the nature of tailings deposits and the availability of historical production history and tailings deposition history, the Company has a high degree of confidence that the Inferred resources will be upgraded with further exploration work.



#### Processing

The Scoping Study contemplates a 1.0Mtpa capacity tailings processing plant. The plant is to be operated 24 hours per day for 90% of the time (7,884 h/y), accounting for availability and utilisation.

Processing will comprise a polishing grind (no crushing required) and classification from ~150 micron to 75 micron, followed by a three stage process to extract copper, gold and pyrite resources.

Copper will be initially recovered via simple Ion Exchange and Electrowinning (IX-EW) of a leached liquor from the tailings slurry, producing on average 850tpa of copper cathode. Gold will then be extracted from the copper-free slurry via a conventional Carbon-in-Leach (CIL) circuit, producing an average of 36,000/oz per annum. Pyrite concentrate (average 230,000tpa) can then be recovered from the barren tailings using a conventional flotation circuit.

Figure 5 below shows the overall flowsheet for the proposed operations. The flowsheet was developed in response to identified operational difficulties encountered by previous owners of the Project. Specifically, the previous owners encountered high cyanide consumptions due to excess soluble copper in the gold CIL circuit.

The upfront removal of copper via dilute acid leaching (utilising the acidic water located in the historical open cut of the mine) and IX-EW has provided a simple mechanism to remove cyanide soluble copper from the tailings. In doing this, consumption of cyanide in the CIL circuit has shown to decrease by ~80%. The additional benefit of copper reomval (beyond a reduction in operating costs) is the production of a by-product stream to further offset the costs of gold production.

Metallurgical testwork to date on a composite of the Mundic tailings has shown the flowsheet is amenable to producing recoveries of 78% of gold, 56% of copper and 91% of pyrite from the tailings material.

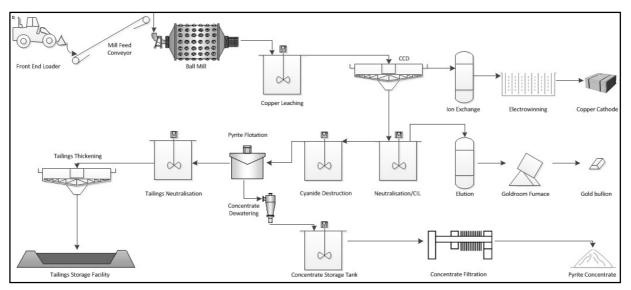


Figure 5: Proposed flowsheet for extraction of copper, gold and pyrite at Mount Morgan



# Existing Site Infrastructure, Plant Layout & Logistics

Substantial infrastructure exists on site at Mount Morgan, including:

- a DNRM operated water treatment plant and associated administration offices;
- site access roads;
- a 7MW transformer connected to the power grid;
- a sewage system; and
- potable water from the Mount Morgan scheme water.

Given the close proximity to major population centres, accommodation and messing facilities are not required for permanent or contract staffing.

The processing plant will be located to the south east of the open pit where historical tailings processing facilities were originally located. This site is in the catchment of Mundic Gully and any run off can be contained with minimal off site impact. From an operations perspective this plant site is relatively central with regards to the tailings resources identified and it also allows relatively low pressure pumping of re-treated tailings to a new tailings storage facility in Sandstone Gully.

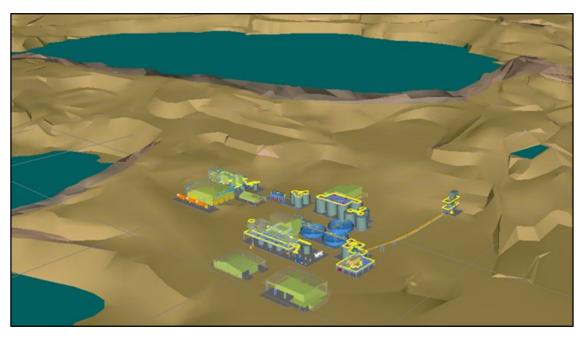


Figure 6: Indicative plant layout on Mount Morgan Mine topography

While the Study is based on the construction of a new plant on site, Carbine is currently conducting a review of the Kundana CIP plant for its suitability for use at Mount Morgan. The Plant is currently located at the Paddington Mine in Western Australia and has been decommissioned, refurbished and packed for transport to Mount Morgan by Norton, at a cost of A\$3.6M.

Supplies required for future operations will be received by road transport from Rockhampton or Gladstone. Gold doré bullion, copper cathode and pyrite concentrate will be trucked offsite in sea containers. The site already receives regular supply trucks for the operation of the existing water treatment plant (quicklime deliveries).



### **Capital Expenditure**

The capital costs for the Project are estimated at A\$81.9M. This includes all installation and commissioning costs and excludes owner's costs and contingency. Pre-development costs such as acquisition and feasibility costs are treated as sunk costs.

Table 3: Capital cost summary for the Mount Morgan Project					
Parameter	Cost (A\$)				
Grinding	\$	11,203,000			
Copper Leach & Counter Current Decantation (CCD)	\$	5,544,000			
Copper Recovery	\$	3,867,000			
Carbon In Leach (CIL)	\$	9,654,000			
Gold Recovery	\$	4,249,000			
Cyanide & Flotation Circuits	\$	7,271,000			
Tailings Neutralisation & Storage	\$	4,341,500			
Reagents & Services	\$	8,645,000			
Subtotal PROCESS PLANT	\$	54,774,500			
HV Power Distribution	\$	3,000,000			
Concentrate Storage, Workshop, Warehouse & Crib Room	\$	1,464,214			
Sewage Upgrade & Ablutions	\$	286,617			
Laboratory	\$	800,000			
Tailings Line	\$	105,000			
Subtotal SITE INFRASTRUCTURE	\$	5,655,831			
Mobile Equipment	\$	1,900,000			
Spares & First Fills	\$	5,918,000			
Subtotal OTHER	\$	7,818,000			
Temporary Construction Facilities	\$	2,956,000			
EPCM Labour and Expenses	\$	10,748,000			
Subtotal EPCM COSTS	\$	13,704,000			
TOTAL CAPITAL COSTS	\$	81,952,331			

Table 3: Capital cost summary for the Mount Morgan Project

Future feasibility studies will also assess options to reduce capital costs through processing optimisation, leasing mobile and plant equipment, purchasing near new second hand infrastructure (e.g, ball mill) and rationalising other major infrastructure.



# **Operating Costs**

The total operating cost is estimated at A\$32.7/t and uses prices obtained in, or escalated to, the third quarter of 2014 (Q3 2014). The estimate includes all operating costs for:

- mining activities;
- process plant, including labour, power, reagents and consumables, maintenance, metallurgical services, laboratory, mobile equipment and operations;
- tailings disposal; and
- general administration, including labour, management, logistics, environmental, and safety.

Opex Parameter	Unit Cost (A\$/t)		% of Total Cost
Ore Handling			
Overburden removal	\$	1.47	4.5%
Mining Costs	\$	1.47	4.5%
Processing - Fixed Cost			
Labour	\$	6.20	18.9%
Miscellaneous	\$	0.15	0.5%
Processing - Variable Cost			
Process Plant Power	\$	3.40	10.4%
Reagents & Consumables	\$	15.30	46.7%
Maintenance	\$	2.37	7.2%
Administration			
General Administrative Costs	\$	0.40	1.2%
Administrative Labour	\$	1.82	5.6%
Administrative Power	\$	0.16	0.5%
TOTAL OPEX	\$	32.74	100%

Table 4: Operating cost summary for the Mount Morgan Project

The operating costs include labour costs for a permanent workforce of 59 direct staff for the Mine. The proposed operations are anticipated to assist in the indirect employment of up to an additional 200 people for Mount Morgan and the region.

Reagents and consumables of the proposed operations represent the most significant operating cost, comprising nearly 47% of the total. In particular, cyanide and lime reagents represent a substantial portion of the overall reagent cost. Carbine continues to identify further options for reduction in reagent usage and the general costs of these inputs. The Company anticipates achieving refinement and cost reductions for these reagents as part of future feasibility studies.



#### **All-in Sustaining Costs**

The All-in Sustaining Costs for the Project have been estimated at US\$393/oz for the life of operations. This cost was developed based on realistic assumptions of long term metal pricing forecasts over the life of the mine (gold US\$1,250/oz, copper US\$7,000/t, pyrite US\$86/t) and an A\$/US\$ average exchange rate of 0.85.

The All-in Sustaining Costs includes allowance for government royalties (gold 5%, copper 4.7% and pyrite 2.5%), however relief from royalties is currently being negotiated with the Queensland Government as recompense for assisting with remediation activities of the site. If royalties were removed from operations it is estimated the All-in Sustaining Costs would reduce to US\$317/oz.

The relatively low All-in Sustaining Costs for the Project compared to the current gold price are primarily driven by the sale of by-products (copper and pyrite). This low cost provides considerable buffer against any drop in the gold price and hence improves confidence in the potential of the Project to remain viable throughout its mine life.

It is also important to consider the potential viability of the Project assuming no sales of pyrite. While Carbine has received significant preliminary interest in the pyrite concentrate specifications from traders and end users, the pyrite market itself is relatively opaque and the Company is yet to establish any commercial arrangements for sale of the by-product. Based on no sales of pyrite (i.e. gold and copper sales only), the average All-in Sustaining Costs of the Project are adjusted to US\$707/oz. This indicates the Project is still predicted to provide robust returns without the need to specifically rely on pyrite sales throughout the life of mine.

The All-in Sustaining Costs are based on the preliminary mine plan and production schedule which include Inferred resources. Readers are referred to the Cautionary Statement on page two of this announcement.

If Inferred resources are excluded from the production target, the mine life is reduced to approximately three years. The project economics would however remain positive if Inferred resources were excluded, meaning the Project would remain viable.



#### Forward Work Plan

Following on from the robust Scoping Study results, Carbine will now progress the completion of a drilling program at the site prior to initiation of a Preliminary Feasibility Study (PFS). The PFS will be utilised to confirm and refine the value proposition of the Project via continued optimisation of the flowsheet and acquisition of more definitive equipment and reagent pricing.

Carbine is well advanced on many of the key inputs for the PFS and anticipates completion by the end of Q2 2015.

Key areas of Project development that are targeted to occur during the PFS period include:

- Conversion of Inferred resources and the Exploration Target into Indicated resources, allowing potential for delineation of JORC reserves for the Project.
- Upgrading of the Scoping Study to include additional defined Indicated resources and allow the release of full Study financial metrics to the market.
- Initiatives to reduce capital and operating costs by further flowsheet testwork and optimisation.
- Assisting the DNRM and other government agencies in ensuring on-going efficient environmental monitoring and remediation activities, including the potential management of the current water treatment plant on site.
- Assessing a number of potential offtake opportunities for the currently uncommitted pyrite concentrate from the Project.
- Assessing potential partners for the supply of processing equipment and technology.
- Continued negotiation with the DNRM and other government agencies for royalty relief and/or subsidies in recompense for assistance with the environmental remediation of the state owned environmental legacy.
- Initial assessment of financing partners to potentially fast track the Project through feasibility and into production.

The Company sees no reason why the ASX would not allow trading to recommence immediately.

#### For further information, please contact:

Patrick Walta - Executive Director (08) 6142 0986



#### Forward Looking Statements & Modifying Factors

This announcement contains certain for looking statements. The words "expect", "forecast", "should", "projected", "potential", "could", "may", "will", "predict", "plan' and other similar expressions are intended to identify forward looking statements. Indications of, and guidance on, future earnings, cash flow forecasts, and financial position and performance are also forward looking statements. Forward looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. Forward looking statements may be affected by a range of variables that could cause actual results or trends to differ materially. These variations, if materially adverse, may affect the timing or the feasibility of the development of the Project.

The announcement also contains forward looking statements in relation to future mining activity, however Carbine will require additional funding to bring the Project into production and there is no certainty of this funding being available. The Directors' strategy during this study phase of the Project is to raise funds periodically when they are needed in the least dilutionary manner to shareholders. The Company intends to evaluate a range of funding alternatives for Project development once an Ore Reserve has been estimated.

The Company believes it has a reasonable basis for making the forward looking statements in this announcement, including with respect to the inclusion of Inferred resources in any production targets, based on the information contained within this announcement. In particular:

- The current JORC resources are based on independent verification by Coffey Mining Pty Ltd and the current Exploration Target was compiled by an independent consulting geologist who conducted an extension review of the substantial historical drilling and tailings production database (see Competent Persons Statements).
- All metallurgical testwork was carried out by an independent metallurgical consultant and ALS Laboratories, in conjunction with assistance from specific technology companies, namely Clean TeQ Holdings Limited for IX-EW development.
- Ausenco Services Pty Ltd was the independent lead consulting engineering firm who derived the all major capital and operating cost inputs for the Study, as well as the completion plant/mine design, trade-off studies, assessment of infrastructure requirements, mass balance, equipment lists, process design criteria, process flow diagrams and flowsheet development.
- Ausenco's work was also independently audited by Sedgman Limited.
- The tailings storage facility was specifically designed and estimated by specialist tailings consultants Golders Pty Ltd.
- All mining and overburden estimated were acquired from Charlton Earthmoving and Civil Pty Ltd, who are familiar with the site having had direct experience with the Project through previous owners of the mining leases.
- The Scoping Study also utilised information derived from previous detailed feasibility studies completed by previous owners Norton Gold Fields Limited and Moonraker Pty Ltd. This included water management reports, environmental impact assessments, social impact analysis and pyrite logistics analysis.



#### Competent Person Statement – Exploration Target:

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.

#### Competent Person Statement – JORC Resources:

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 since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.