

# Q4 2017 Quarterly Activities Report

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# Continue to progress towards becoming the world's pre-eminent supplier of natural graphite

	Syrah Resources Q4 2017 Highlights
Health and Safety	<ul> <li>Total Recordable Injury Frequency Rate (TRIFR) of 0.8 at the end of 2017, a significant improvement versus 2.5 at the end of 2016.</li> </ul>
Balama Graphite Operation	<ul> <li>First production of bagged saleable flake and fines product achieved.</li> <li>All major construction and commissioning activities essentially complete.</li> <li>Construction and commissioning team demobilised and site responsibilities handed over to the operations team on 1 January 2018, focus on plant optimisation and production ramp-up.</li> <li>Final project capital cost of US\$215m, previously \$210m, increase mainly due to additional resourcing and equipment.</li> <li>&gt;3000 tonnes of bagged saleable graphite produced as at 27 January 2018.</li> <li>Targeting cash operating cost <us\$400 2018.<="" by="" end="" li="" of=""> </us\$400></li></ul>
Sales and Marketing	<ul> <li>Sales agreement signed with spherical graphite and anode materials producer, Zhanjiang Juxin New Energy Materials in China for 20,000 tonnes in 2018.</li> <li>Further sales agreements announced in early January diversifying customer geography and end use markets.</li> <li>Graphite sales and shipping commenced/scheduled in January. Pricing for initial shipments lower than price reporting agencies. As customer base evolves, price discovery to develop further.</li> <li>First cash flows from sales and qualification products to be received in February.</li> </ul>
Battery Anode Material (BAM) Project	<ul> <li>Commercial discussion progressing for alternative sites in Louisiana.</li> <li>Majority of work completed to date is transferable to new site, long lead time items arrive in Q1 2018.</li> <li>Installation of initial milling equipment for first production, three months after final site decision.</li> </ul>
Finance	<ul> <li>Cash on hand US\$111.9m as at 31 December 2017.</li> <li>Targeting positive cash flow at Balama in early H2 2018, previously late H1, due to minor revisions to the production plan.</li> </ul>

# Health, Safety, Environment and People

### Strong health and safety record and ongoing community initiatives

- Total Recordable Injury Frequency Rate (TRIFR) of 0.8 at end of 2017.
- Zero non-compliances across >200 environmental license conditions in 2017.
- Chipembe Dam large scale irrigation and agriculture community program well advanced.
- Remediation works at Chipembe Dam including dam outlet valve repair preventing water loss of up to 50,000m<sup>3</sup> per day.



Chipembe Dam installation of concrete culvert on spillway.



Local community site visit.



World Aids Day event co-hosted by Syrah including health awareness program.



Seasonal celebration and gift giving to Balama orphanage.



# Balama Graphite Operation: Construction and Commissioning

#### All major construction and commissioning activities essentially complete

- Construction and commissioning teams demobilised, site responsibilities handed over to operations team 1 January 2018.
- Final project capital cost of US\$215m (previously US\$210m), increase mainly due to additional resourcing and equipment to complete construction and commissioning.
- Attrition cells, to achieve up to 98% fixed carbon, installation to commence late Q1 2018, operational H2 2018.
- Total working capital spend in Q4 2017 US\$11.4m:
  - US\$7.5m production ramp-up operating costs,
  - US\$3.9m sustaining capital mainly for TSF Cell 1B and community development expenditure.
- Sustaining capital for 2018 US\$7m-US\$10m, includes US\$2.2m for completion TSF Cell 1B early Q2 2018.



Balama plant site.



Loading product on first truck to Port of Nacala.



## **Balama Graphite Operation: Production**

#### First production achieved in Q4 2017, operations commenced

#### **Production**

- First production of bagged saleable coarse and fine flake graphite in Q4 2017.
- Product grades > 95% fixed carbon, particle size within specification.
- Plant currently producing ~ 150 tonnes per day, increasing steadily, product split ~30% coarse flake / 70% fines.
- >3,000 tonnes saleable bagged product produced as at 27 January
- Target production 2018 160,000 to 180,000 tonnes<sup>1</sup> production skewed to H2 2018.
- Target cash operating costs < US\$400 per tonne by end of 2018.

#### Mining

- Mining operations progressing well.
- Pre-stripping Balama West ore body complete.
- Steady state ore mining.
- Drill and blast for small section of hard rock in H1 2018, expect free dig thereafter.
- Plant feed grades ~ 15% total graphitic carbon.

## Plant optimisation

- Minor design enhancements key focus:
  - Crushing
  - Flotation cell performance
- Balama expansion and optimisation review in 2018.

<sup>(1)</sup> Refer to ASX announcements titled "Syrah finalises Balama Graphite study and declares maiden ore reserve" released on 29 May 2015, "Syrah increases Balama Reserves and awards Laboratory Contract" released on 15 November 2016. All material assumptions underpinning the production target in these announcements continue to apply and have not materially changed.



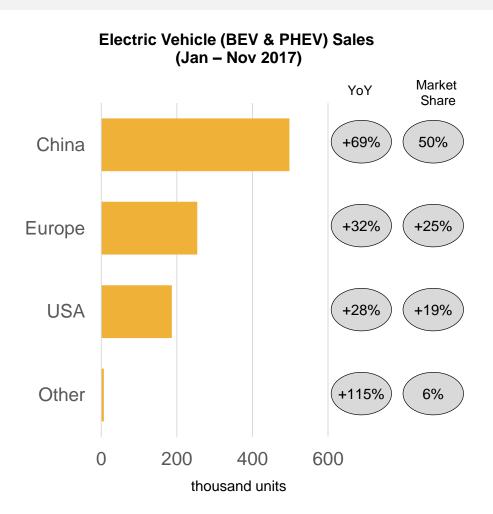
# **Sales and Marketing**

#### Diversification of geographic customer base and end use markets **Description** Customer **Type** Region **Tonnes** Duration **Announced** China **Zhangjiang Juxin** Spherical graphite and anode Sales Agreement 20,000 1 year 04 Dec 2017 **New Energy** material producer Yichang Xincheng Specialty expandable graphite Spot China Spot 05 Jan 2018 Graphite producer Sales Agreement CS Additive Speciality carbon producer Europe Min 6.000 3 years 05 Jan 2018 in 2018 Magus Marketing Sales agent Agency sales Indian sub 05 Jan 2018 continent agreement

- Syrah decision to restrict activation of certain elements of Chalieco contract including minimum tonnage requirement (announced 5 Jan 2018), allows flexibility to develop the sales book into the Chinese industrial market.
- Syrah's global sales portfolio include first significant import volumes of graphite into China.
- Graphite sales commenced, mix of sales and qualification product shipped or scheduled to be shipped to Europe, China, USA, India and Brazil in January, including first shipment to BTR sailed in early January.
- Price for early shipments lower vs third party price reporting agencies:
  - Interaction with global customer base evolving;
  - Product qualification and sales progress, price discovery will develop further and;
  - Prices reflecting global demand for high grade, quality and consistency expected to increase over time.
- First revenues to be received in February.



## **Graphite Market Update**



#### **Demand**

- Global electric vehicle (BEV + PHEV) sales up +51% to just over 1 million units to November 2017.
- In China, total EV sales were 498,000, +69% YoY to November and overall EV sales represent 2.5% of the auto market (penetration rate).
- Steel production continued to perform well (+5.3% in 2017), which is supporting natural graphite consumption for refractory applications.

#### **Supply**

- In China, ongoing enforcement of environmental regulations continued to impact supply
- Brazilian exports of flake graphite were down -5% in 2017 to 22,500t.

#### Price<sup>1</sup>

- The price for larger flake graphite, used in refractory applications, remained at elevated levels compared to early 2017.
- Prices for minus 100 mesh (also known as fines) natural graphite, used in the battery sector, were relatively flat.
- Prices for uncoated natural spherical graphite were flat in Q4.



# **Graphite market industry commentary**

#### **Recent Commentary**

3 Month **Price Change** 



"The flake graphite market in Europe has started 2018 on an upward trend".

+0 % -100 mesh, 94-97%



+3 - 5% "Decreased flake graphite production within China during December saw -100 mesh, 94% a seasonal response in pricing, however increases on the whole were less than in previous years following the spike in prices earlier in H2'.

+0 - 4%

Larger flake sizes



"tightening supply has been accentuated by environmental plant closures in China".

+20 - 25%

"Prices for the highest grades of flake graphite increased in Q4 2017 following several months of speculation".

Larger flake sizes



"Shandong faced strict environmental protection inspections and almost all of the flake graphite producers halted production".

+2 - 3% -100 mesh

# **Battery Anode Material (BAM) Project**

- Commercial discussions progressing for alternative sites in Louisiana, following rejection of previously selected Port Manchac as not appropriate for further manufacturing facilities (as announced 8 January).
- Majority of work transferrable to alternate site including engineering design.
- Air and water permits submitted to Louisiana Department for Environmental Quality and Syrah's proposed facility will comply with all relevant environmental regulations.
- Long lead time items arrive in US in Q1.
- Following final site decision, installation of initial milling equipment and infrastructure ~ 3 months for first production of milled material.
- Testing and benchmarking of electrochemical properties of battery anode materials using Balama material completed, will guide next phase of development plan, update end Q1 2018.

## **Finance and Corporate**

- Cash balance as at 31 December 2017 US\$111.9 million.
- Successfully completed A\$110 million (US\$87 million) equity raising with retail component of Entitlement Offer of A\$36 million (US\$29 million) received in Q4 2017.
- Targeting positive cash flow at Balama in early H2 2018, previously late H1 2018 due to a minor revision to production plan.

## **Summary**

### **Operations Commenced**

- Strong health and safety record continues.
- Balama construction and commissioning essentially complete and handed over to operations.
- First production of bagged saleable coarse and fine flake achieved in Q4 2017.
- Further signed sales agreements, providing diversification by geography and end market.
- First significant import of graphite into China.
- Progressing commercial discussions with alternative sights a Louisiana for BAM Project.
- Balance sheet remains strong.
- Syrah Resources remains the only major new supplier of graphite to world's battery market.

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