

# Quarterly Exploration and Mining Activities Report

## July to September 2019 (Q1 FY19)



### Q1 FY19 Highlights

- Total lithium and iron ore production for the quarter was 2.423 million wet tonnes with 2.133 million wet tonnes shipped
- Spodumene concentrate production remained in line with Q4 FY18, with a 69% majority of output high-grade 6% Li<sub>2</sub>O product up from 65% in Q4 FY18
- DSO export volumes from Wodgina decreased to 0.422 million wet tonnes for the quarter, in line with plans to maximise realised future value from the ore body by retaining the ore for use in future spodumene concentrate production.
- Iron ore mining and crushing activities commenced at Koolyanobbing late in the Q1 FY19, with exports expected to commence in late Q2 FY19.

### Production and Commodity Shipments

'000 WMTs	Q1 FY19		Q4 FY18		Q1 FY18	
	PRODUCED	SHIPPED	PRODUCED	SHIPPED	PRODUCED	SHIPPED
<b>UTAH POINT</b>						
Iron Valley	1,862	1,620	1,821	1,597	1,975	1,545
Wodgina	358	422	845	754	913	728
<b>Total Utah Point</b>	<b>2,220</b>	<b>2,042</b>	<b>2,666</b>	<b>2,351</b>	<b>2,888</b>	<b>2,273</b>
<b>KWINANA BULK TERMINAL 2</b>						
Carina & J4	-	-	282	618	1,047	841
Mount Marion <sup>1</sup>	111	91	109	95	112	90
<b>Total Kwinana Bulk Terminal 2</b>	<b>111</b>	<b>91</b>	<b>391</b>	<b>713</b>	<b>1,159</b>	<b>931</b>
<b>ESPERANCE</b>						
Koolyanobbing	92	-	-	-	-	-
<b>Total Esperance</b>	<b>92</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>TOTAL IRON ORE</b>	<b>1,954</b>	<b>1,620</b>	<b>2,103</b>	<b>2,215</b>	<b>3,022</b>	<b>2,386</b>
<b>TOTAL SPODUMENE</b>	<b>111</b>	<b>91</b>	<b>109</b>	<b>95</b>	<b>112</b>	<b>90</b>
<b>TOTAL DSO LITHIUM</b>	<b>358</b>	<b>422</b>	<b>845</b>	<b>754</b>	<b>913</b>	<b>728</b>
<b>GRAND TOTAL</b>	<b>2,423</b>	<b>2,133</b>	<b>3,057</b>	<b>3,064</b>	<b>4,047</b>	<b>3,204</b>

# LITHIUM

## Wodgina Lithium

'000 WMTs	Q1 FY19	Q4 FY18	Q1 FY18
Mined	738	1,103	1,132
Produced	358	845	913
Shipped	422	754	728

Production of DSO lithium for the quarter was 358,000 wet tonnes.

DSO export volumes from Wodgina were lower in the quarter at 0.422 million wet tonnes, in line with plans to maximise realised future value from the ore body by retaining the ore for use in future spodumene concentrate production.

Construction of the 750,000 dry tonne per annum spodumene processing plant along with the associated crushing and non-process infrastructure upgrades continued during the quarter. As disclosed to the ASX on 25 October 2018, there is a delay of approximately 8 weeks in delivery of the project as a result of late delivery of long lead items and congestion in Perth fabrication and rubber lining facilities. The first-stage 250,000 tonne module is expected to begin commissioning in Q3 FY19 followed by stages 2 and 3 in Q4 FY19.

A further resource exploration drilling program commenced in Q4 FY18 and was completed in Q1 FY19, targeting the Cassiterite Pit resource at depths up to 500m. The 60-day program consisted of approximately 12,000 metres drilled. A separate JORC resource and ore reserve update statement was released in October 2018 (ASX 231018) with a 25.3 Mt increase in the Wodgina mineral resource from the May 2018 update.

## Mt Marion

'000 WMTs	Q1 FY19	Q4 FY18	Q1 FY18
Mined	706	799	665
Produced	111	109	112
Shipped	91	95	90

Mining continued in both C1 and N6 pits with total material movement of 5.2 million wet tonnes being achieved during the quarter. The mining movements have provided consistent access to the ore body for processing.

The processing plant availability stayed consistent with the previous quarter at 91%, while the beneficiation plant throughput decreased from 627,777 wmt to 612,782 wmt.

Spodumene concentrate production improved against the previous quarter with a total production of 111,023 wmts with the proportion of high-grade (6%) spodumene concentrate increasing to 69% compared to 65% in the previous quarter. A total of 91,313 wmt was shipped during the quarter.

The upgrade works for all in 6% product are on track for completion in Q2 FY19.

A separate JORC resource update statement has been released in October 2018 (ASX 311018) to update the previous reported Mt Marion Mineral Resource dated 21 October 2016. Taking account of the additional delineated mineralisation and mining depletion during the period finishing 30 September 2018, indicated and inferred resources now total 71.3Mt at 1.37% Li<sub>2</sub>O and 1.09% Fe; reported above a cut-off grade of 0.5% Li<sub>2</sub>O.

The previous Mineral Resource estimate as at 21 October 2016 was 77.8Mt at 1.37% Li<sub>2</sub>O and 1.09% Fe; reported above a cut-off grade of 0.5% Li<sub>2</sub>O. The changes reflect an addition of 0.5Mt of spodumene bearing pegmatite and mining depletion of 6.9Mt over the intervening period.

The Mineral Resources-operated Mt Marion Project is a joint project between Mineral Resources (43.1%), Neometals Limited (13.8%) and one of the world's largest lithium producers, Jiangxi Ganfeng Lithium Co (43.1%).

## IRON ORE

### Iron Valley

'000 WMTs	Q1 FY19	Q4 FY18	Q1 FY18
Mined	2,121	1,406	2,120
Produced	1,862	1,821	1,975
Shipped	1,620	1,597	1,545

Mining continued in the C1, C2, C4 and C7 pits during the quarter for blended feed. The second excavator fleet focused on developing the Central pit C7 cutback with access to additional ore achieved by the end of the quarter. Development works commenced at the C9 pit with first blast patterns fired. Planning, evaluation and preparation for the C8 cutback to further expand the Central Pit progressed for commencement in early October.

The Iron Valley crushing operations performed above nameplate to produce 1.9 million wet tonnes of product for the quarter, with 1.6 million wet tonnes exported. The demand for fines improved at the end of the quarter allowing stockpiled fines to be exported.

The low grade iron ore business remains marginal, with growing impurities making it challenging. Management continues to monitor the iron ore operations closely.

### Koolyanobbing

'000 WMTs	Q1 FY19	Q4 FY18	Q1 FY18
Mined	263	-	-
Produced	92	-	-
Shipped	-	-	-

During the quarter, MRL announced (ASX 290818) the completion of the acquisition of the Koolyanobbing iron assets from Cleveland-Cliffs Inc. and finalised access arrangements with the State Government in relation to the Port of Esperance. Mining and crushing activities commenced at Koolyanobbing late in the quarter, with exports expected to commence in late Q2 FY19.



# MINING EXPLORATION AND DEVELOPMENT ACTIVITY

## Brockman Mining Limited

During the quarter, MRL announced the execution of a Farm-in and Joint Venture Agreement (JV) with Brockman Mining Limited (ASX: 270718) that grants MRL the right to acquire a 50% interest in the Marillana iron ore project (Marillana) in the Pilbara, Western Australia.

Under the agreement the JV will initially develop and operate a 20Mtpa iron ore export product capacity, with potential to increase to 30Mtpa.

In order to acquire its 50% interest, MRL must first:

- expend A\$250,000 on exploration and development activities on the Marillana tenements, and
- complete the process design criteria of the processing plant(s), optimise its mine plan study and finalise its mine development layout plan.

Development of the mine site is estimated at A\$300 million. Expenditure will be split 50:50 between Brockman Mining and MRL.

In September 2018, the first stage of the Marillana Mine commenced. This stage will see an access road constructed along with the excavation of 4,000 tonnes of iron ore, which will be metallurgically tested at MRL's Iron Valley crushing facility.

## Hexagon Resources – McIntosh Graphite Development

MRL and Hexagon Resources Limited (ASX: 130718) announced the joint venture had commenced a feasibility study for the McIntosh flake graphite project located in the East Kimberley region of Western Australia. The feasibility study comprises a comprehensive drilling program of c.12,000 metres that commenced mid-August 2018.

The aim of the drilling program is to test the resource potential of new targets east of the known resource, confirm and upgrade existing targets and resources and generate approximately 17 tonnes of core samples for metallurgical test work.

The drilling program is due for completion at the end of October 2018, with assaying and metallurgical studies being completed over the remainder of the year.

Highlights to date:

- 90 metres of shallow graphite mineralisation intersected at the new Mahi Mahi target
- Drilling at the Emperor Mineral Resource indicates mineralisation occurs at shallower levels than previously interpreted, and generally confirms previous interpretation. Samples successfully collected for metallurgical testing
- Drilling at the Wahoo resource has confirmed current interpreted mineralisation and metallurgical samples have been collected for analysis.



## OIL AND GAS

The renewal of the Exploration Permit 389 continued to be progressed with the Department of Mines, Industry Regulation and Safety (DMIRS) during the quarter.

Planning for flora, fauna and heritage surveys as well as a more detailed community and key stakeholder engagement program has commenced.

Industry collaboration continues with the aim of utilising the drilling rig that appears likely to be operating within the Perth Basin in calendar year 2019.



## Further Information

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### Competent Person's Statement

*The information is extracted from previous MIN ASX announcements available on the company website at [www.mineralresources.com.au](http://www.mineralresources.com.au). 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 or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement 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.*

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