

# QUARTERLY EXPLORATION AND MINING ACTIVITIES REPORT



April to June 2023 (Q4 FY23)

26 July 2023

Mineral Resources Limited (ASX:MIN) (MinRes or the Company) is pleased to present its Quarterly Exploration and Mining Activities Report for the period to 30 June 2023.

## Q4 KEY POINTS

- Safety performance for the quarter was 0.15 Lost Time Injuries. Total Reportable Injury Frequency Rate was 2.21. On 12 June 2023, Kieren McDowall, an employee of a contractor at Ken's Bore working on the Onslow Iron Project, tragically lost his life. Senior management, including Managing Director Chris Ellison travelled to site with our Head of Mental Health and our employee assistance program service provider to offer support. An investigation into the incident continues. Safety remains a top priority for our business.
- Mining Services production volumes were 58Mt during the quarter and totalled 248Mt for FY23, in line with revised guidance of 245-255 Mt. During the quarter, a new crushing plant was commissioned and a haulage contract was extended for a further 2 years with an external client.
- Total June quarter iron ore shipments were 4.3M wet metric tonne (wmt), resulting in FY23 shipments of 17.5M wmt. Combined Free On Board (FOB) costs are expected to be at the upper end of the FY23 guidance range of \$73-\$83/t. The average quarterly realised iron ore price was US\$91 per dry metric tonne (dmt), representing an 82% realisation of the Platts 62% IODEX. The average quarterly product discount was 11%.
- All major approvals have now been received for the Onslow Iron Project. The first ore-on-ship delivery is expected in June 2024.
- Quarterly Mt Marion SC6 equivalent spodumene shipments were 39k dmt (attributable), bringing FY23 shipments to 149k dmt, in line with revised guidance of 145-150k dmt. The FY23 SC6 equivalent FOB cost is expected to be within guidance of \$1,200-\$1,250/dmt. The average quarterly realised spodumene price was US\$2,589 per dmt.
- The expansion of the Mt Marion processing plant was completed in June 2023.
- MinRes announced encouraging exploration results at Mt Marion which confirm significant opportunity for open pit extensions and underground potential<sup>1</sup>.
- The cooperation agreement to convert Mt Marion spodumene concentrate into lithium battery chemicals with Ganfeng Lithium Co. Ltd (**Ganfeng**) was mutually terminated<sup>2</sup>.
- Quarterly Wodgina SC6 equivalent spodumene shipments were 34k dmt (attributable), resulting in FY23 shipments of 143k dmt, marginally below the revised guidance of 150k dmt. The FY23 SC6 equivalent FOB cost is expected to be within guidance of \$925-\$975/dmt.
- Wodgina lithium battery chemical production in the quarter was 4.2kt and 11.5kt for FY23, in line with production guidance of 11.5-12.5kt. Lithium battery chemical sales in the quarter was 3.5kt and 7.3kt for FY23, in line with sales guidance of 7.0-7.5kt. The average realised lithium battery chemical revenue in the quarter was US\$40,484/t.
- MinRes has amended the terms of the transactions signed with Albemarle Corporation (**Albemarle**), previously announced on 23 February 2023. MinRes will no longer invest in any Chinese conversion assets and Albemarle will take full ownership of the Kemerton lithium hydroxide plant. Albemarle will pay MinRes an estimated US\$380-\$400 million on completion. Completion is expected in the December quarter<sup>3</sup>.
- MinRes announced a significant natural gas discovery at North Erregulla Deep-1<sup>4</sup>. The Company also completed the acquisition of Norwest Energy NL on 29 April 2023<sup>5</sup>.

<sup>1</sup> ASX announcement 16 June 2023

<sup>2</sup> ASX announcement 16 June 2023

<sup>3</sup> ASX announcement 20 July 2023

<sup>4</sup> ASX announcement 16 June 2023

<sup>5</sup> ASX announcement 2 June 2023

## IRON ORE

	Units	FY23	FY22	YoY Var	Q4 FY23	QoQ Var	PcP Var
<b>Yilgarn Hub</b> (100% attributable basis, unless otherwise indicated)							
Mined	k wmt	7,985	7,625	5%	2,043	(1%)	2%
Produced	k wmt	8,234	9,273	(11%)	1,973	(5%)	(5%)
Shipped	k wmt	7,656	8,679	(12%)	1,938	(9%)	(9%)
<b>Utah Point Hub</b> (100% attributable basis, unless otherwise indicated)							
Mined	k wmt	10,668	11,560	(8%)	2,327	(21%)	(27%)
Produced	k wmt	11,637	11,221	4%	2,496	(15%)	(15%)
Shipped	k wmt	9,840	10,533	(7%)	2,327	(4%)	(9%)

During the quarter, a total of 4.3M wmt was shipped, down 6% qoq. Utah Point Hub shipped 9.8M wmt in FY23 whilst Yilgarn Hub shipped 7.7M wmt. Total iron ore shipped volumes for FY23 was 17.5M wmt (21% lump), in line with FY23 guidance of 17.2-18.8M wmt.

The decrease in mined tonnes at Utah Point during the last quarter was a result of the shift in mining operations from the central to north east pit at Wonmunna. Utah Point shipments were negatively impacted in the quarter after Cyclone Ilsa caused the port to close in April, compounded by ongoing material handling constraints at the port.

The average realised iron ore price for the quarter was US\$91 per dmt, 16% lower qoq, representing an 82% realisation of the Platts 62% IODEX. Demand for lower grade products continue to be strong with product discounts of 11%, in line with the prior quarter.

As disclosed in the prior quarter, FOB costs at both hubs is expected to be at the upper end of the FY23 guidance range (\$73-\$83/t).

## LITHIUM

### Mt Marion

		FY23	FY22	YoY Var	Q4 FY23	QoQ Var	PcP Var
<b>Mt Marion: Spodumene concentrate</b> (50% attributable basis, unless otherwise indicated)							
Mined (100% basis)	k dmt	2,122	1,908	11%	615	15%	50%
Produced	k dmt	234	216	9%	60	(1%)	(7%)
Shipped	k dmt	236	221	7%	61	(2%)	(14%)
Shipped - SC6 equivalent	k dmt	149	152	(2%)	39	(2%)	0%

The Mt Marion expansion was delivered in line with the budget of \$145M. Commissioning of both the crushing and beneficiation plants commenced late in the quarter.

Mined tonnes increased in the quarter while pre-stripping of new mining areas was undertaken to open multiple mining fronts and provide access to higher quality feed in FY24. As a result, additional low grade contact ore stockpiles were processed with 60kt of mixed grade spodumene concentrate produced in the quarter.

SC6 equivalent shipments were 39k dmt, down 2% qoq with FY23 shipments of 149k dmt, in line with guidance of 145-150k dmt. The SC6 equivalent FOB cost is expected to be within the guidance range of \$1,200-\$1,250/t.

The average quarterly realised spodumene concentrate price was US\$2,589/dmt, inclusive of grade adjustments and product discounts, down 23% qoq.

The cooperation agreement to convert Mt Marion spodumene concentrate into lithium battery chemicals with Ganfeng was mutually terminated with effect from 1 June 2023. The parties have further confirmed that there will be no payments to Ganfeng under the agreement in respect of the sales of lithium battery chemicals in calendar year 2023. Accordingly, the prior guidance of lithium battery chemicals volumes for FY23 was withdrawn.

### MARBL JV

MinRes announced<sup>6</sup> it had amended the terms of the transactions signed with Albemarle on 23 February 2023. Completion of the arrangements is expected in the December quarter and is dependent on approval from the Foreign Investment Review Board. The key terms are:

- MinRes' share of the Wodgina lithium mine will increase to 50% and MinRes will remain the operator of the mine.
- Albemarle will take full ownership of the Kemerton lithium hydroxide plant, which it currently operates.
- The economic effective date for the revised transaction will be 1 April 2022.
- Albemarle will pay MinRes an estimated US\$380-\$400 million including the net consideration for MinRes' share of Kemerton and completion adjustments at Wodgina and Kemerton.
- MinRes will no longer invest in any Chinese conversion assets with Albemarle and will not make any payments to Albemarle for joint downstream investments.
- MinRes will enter a transitional tolling arrangement with Albemarle to convert Wodgina spodumene until 30 June 2024 to allow MinRes to continue to build its team in China.
- MinRes will transition to market its own share of Wodgina spodumene concentrate and lithium battery chemicals within two months of completion and has established an office and warehouse in Ningbo, China.

<sup>6</sup> ASX announcement 20 July 2023

## Wodgina

		FY23	FY22	YoY Var	Q4 FY23	QoQ Var	PcP Var
<b>Wodgina: Spodumene concentrate</b> (40% attributable basis, unless otherwise indicated)							
Mined (100% basis)	k dmt	2,966	61	4,762%	722	0%	1,084%
Produced	k dmt	148	8	1,746%	41	(6%)	417%
Shipped	k dmt	150	18	752%	37	(25%)	318%
Shipped - SC6 equivalent	k dmt	143	17	738%	34	(26%)	272%
<b>Wodgina: Lithium battery chemicals</b> (40% attributable basis, unless otherwise indicated)							
Produced	t	11,497	-	N/A	4,224	30%	N/A
Sold	t	7,286	-	N/A	3,492	132%	N/A

Development work and pre-stripping of the Stage 2 cut-back continued in the quarter and is progressing in line with expectations with 3.0M wmt mined. Mining and processing volumes were in line with the prior quarter. The installed plant capacity will be fully utilised once ore from the Stage 2 expansion becomes available in the second half of FY24.

SC6 equivalent shipments in the quarter were 34k dmt, down 26% qoq with FY23 shipments of 143k dmt, marginally below revised guidance of 150k dmt. The SC6 equivalent FOB cost is expected to be within the guidance range of \$925-\$975/t.

Lithium battery chemicals produced were 4.2kt in the quarter, an increase of 30% qoq, resulting in total FY23 production of 11.5kt, in line with guidance of 11.5-12.5kt. Lithium battery chemical sales for the quarter were 3.5kt at an average realised price of US\$40,484/t (down 46% qoq), bringing FY23 sales to 7.3kt, in line with guidance of 7.0-7.5kt.

The June quarterly spodumene concentrate 6% FOB equivalent price applied on Wodgina shipments to be converted to lithium battery chemicals in the September quarter is US\$3,739/dmt.

## Kemerton

The Kemerton Train 1 conversion plant is operating and continues to produce battery-grade product subject to customer qualification.

## EXPLORATION AND DEVELOPMENT ACTIVITY

### IRON ORE

#### Onslow Iron Project

All major approvals have now been received for the Onslow Iron Project, including the successful completion of the Appeals Process and receipt of the Section 38 environmental approvals for the haul road. The first-ore-on-ship delivery target of June 2024 remains.

Key project updates and developments during the quarter include:

- **Private haul road:** Section 38 major environmental approval was received on 3 July and work has commenced.
- **Ken's Bore mine site:** The mining fleet has been mobilised and commissioned. After obtaining a section 46 Ministerial Statement approval, preliminary work started on 16 June, with civil works commencing soon after.
- **Aerodrome:** Preparations are underway for the inspection of the aerodrome by Civil Aviation Safety Authority (CASA). CASA certification is expected to be received in August 2023.
- **Construction camp:** The Onslow 300-room construction village has been completed and is now fully occupied.
- **Onslow accommodation:** Preliminary works are underway for the Onslow resort-style accommodation with earthworks scheduled to begin in the coming months.
- **Road trains:** The procurement of the autonomous road train fleet and associated systems continued. The construction of the truck maintenance facility is well advanced.
- **Port:** Jetty piling work has been completed and bulk earthworks and concreting progressed in preparation for the commencement of standing structural steel and installation of permanent buildings.
- **Transhippers:** The second of five transhippers, named Coolibah, was launched at the COSCO shipyard in Zhoushan, China.

Reverse Circulation (RC) and diamond core drilling continued in the quarter across the Channel Iron Deposits (CID) of the Onslow Iron Project.

- 10,800m of RC drilling was completed across Upper Cane, Kens Bore and Cardo Bore East deposits. The RC drilling will allow a better understand of grade variability and de-risk the 5-year mine plan.
- An additional 1,220m of diamond core drilling was completed across Cardo Bore East and Kens Bore. The diamond core drilling at Cardo Bore East is for QAQC twinning, metallurgical and geotechnical requirements, while the Kens Bore drilling addresses metallurgical requirements including wet plant studies.
- Results from both RC and diamond core drilling programs will also be used to update geological models.



Baowu Chair Visit



Crushing area cleared



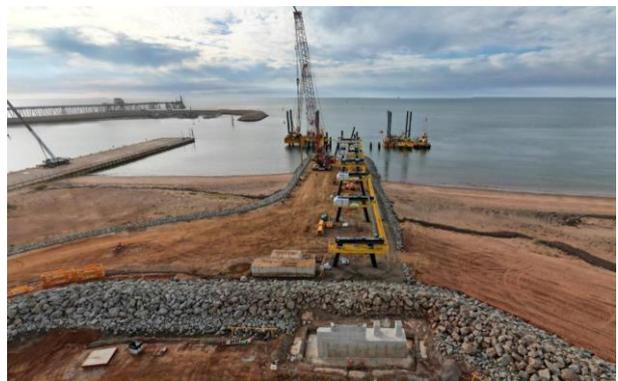
Clearing for resort style accommodation



Onslow 300 room construction camp completed



Construction of Truck Maintenance Facility



Construction of port landslide



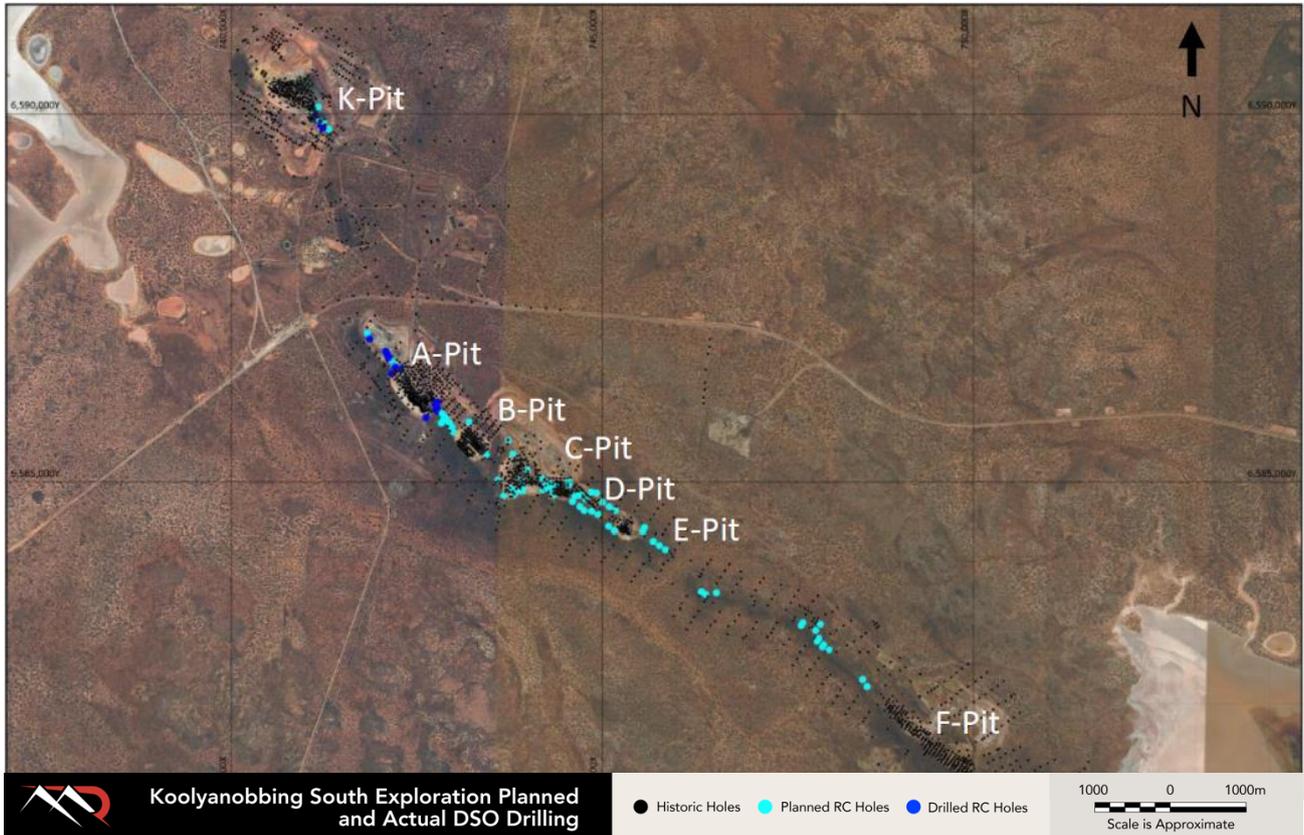
Jetty piling completed



Transhipper "Coolibah" launch

## Yilgarn Hub

A drilling program targeting Direct Shipping Ore (DSO) across the Koolyanobbing Range commenced in June. The program consists of 9,000m of RC drilling with 2,982m completed during the quarter (Figure 1). The drill program is focused on DSO across K Pit through to F Pit targeting open mineralisation along strike and down dip. Assay results are pending.



**Figure 1:** Plan view showing planned and completed drilling across the Koolyanobbing range

Another RC drill program targeting magnetite potential at Mt Richardson is scheduled to commence in early July. The program consists of 12,000m of RC drilling and is targeting magnetite potential below an Inferred DSO Resource of Greenstone hosted Banded Iron Formation (BIF).

## LITHIUM

### Wodgina

A total of 965m of diamond core drilling was completed in the quarter. The diamond holes are designed to test the extension of the pegmatite ore body to further refine the resource estimation.

A total of 3,990m of RC drilling was completed during the quarter. Geometallurgical studies to support plant optimisation along with mining grade control are ongoing.

### Central Norseman

As part of the joint venture between MinRes and Pantoro Resources (ASX:PNR) at the Buldania project, an 8,081m Phase 2 RC drilling campaign was completed to test extensions of previous drilling areas and explore new geochemical lithium targets. Assay results are pending.

### Mt Marion

Resource development activities during the quarter focused on the extension and resource classification upgrades of the North and Central pits. North Pit includes testing the potential for underground mining. Drilling also focused on open extensions of the North and Central pits.

In relation to the Mt Marion underground mining assessment, a total of 6,658m of diamond core and 687m of RC pre-collar drilling was completed during the quarter. The program has been successful to date, with all holes returning assay results which demonstrate grade continuity of the sub-vertical pegmatite domain at depth, including 1km below the current Life of Mine design (Figures 2 and 3). Additional pegmatite domains are being identified in the hanging wall and footwall of the pegmatite.

A total of 17,905m of RC drilling has been completed during the quarter, primarily 40x40m infill drilling at the Central and North pits. A total of 936m of RC pre-collar and 227m PQ diamond drilling was completed as part of the geometallurgical drill program designed to support the plant optimisation at Mt Marion. An additional 68m of HQ diamond drilling was completed as part of the Central Pit cutback geotechnical drill program.

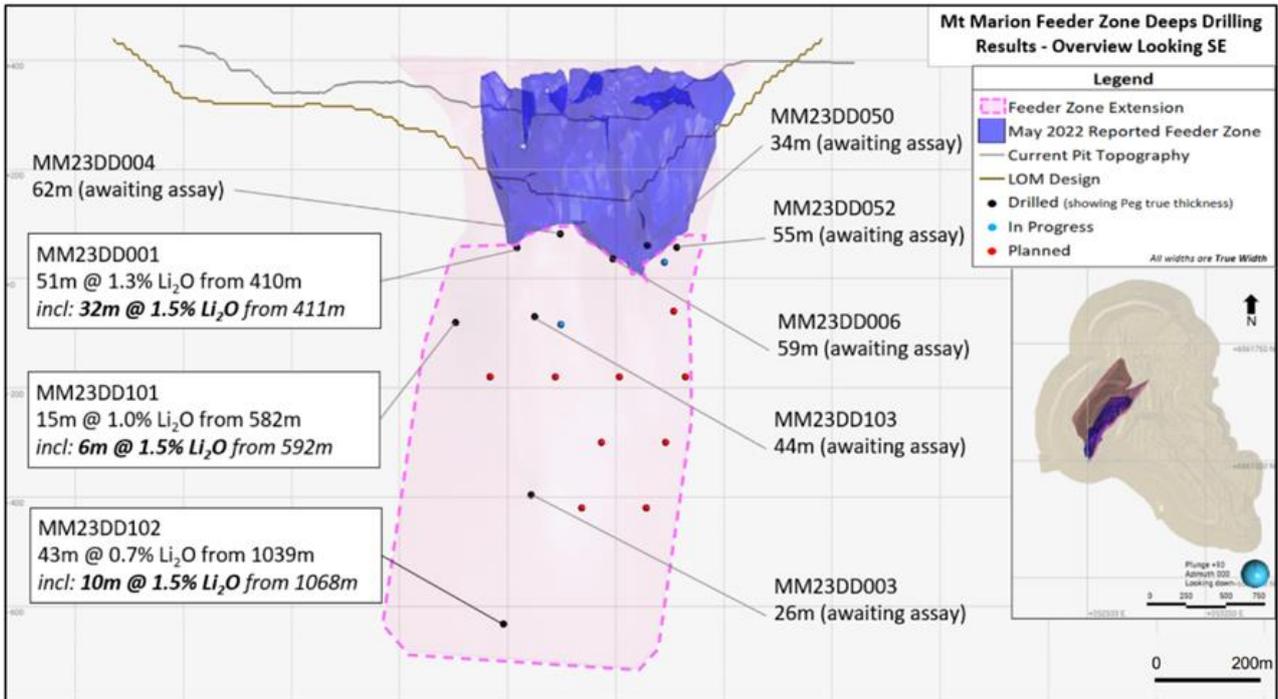


Figure 2: North Pit long section showing focus of exploration for underground potential

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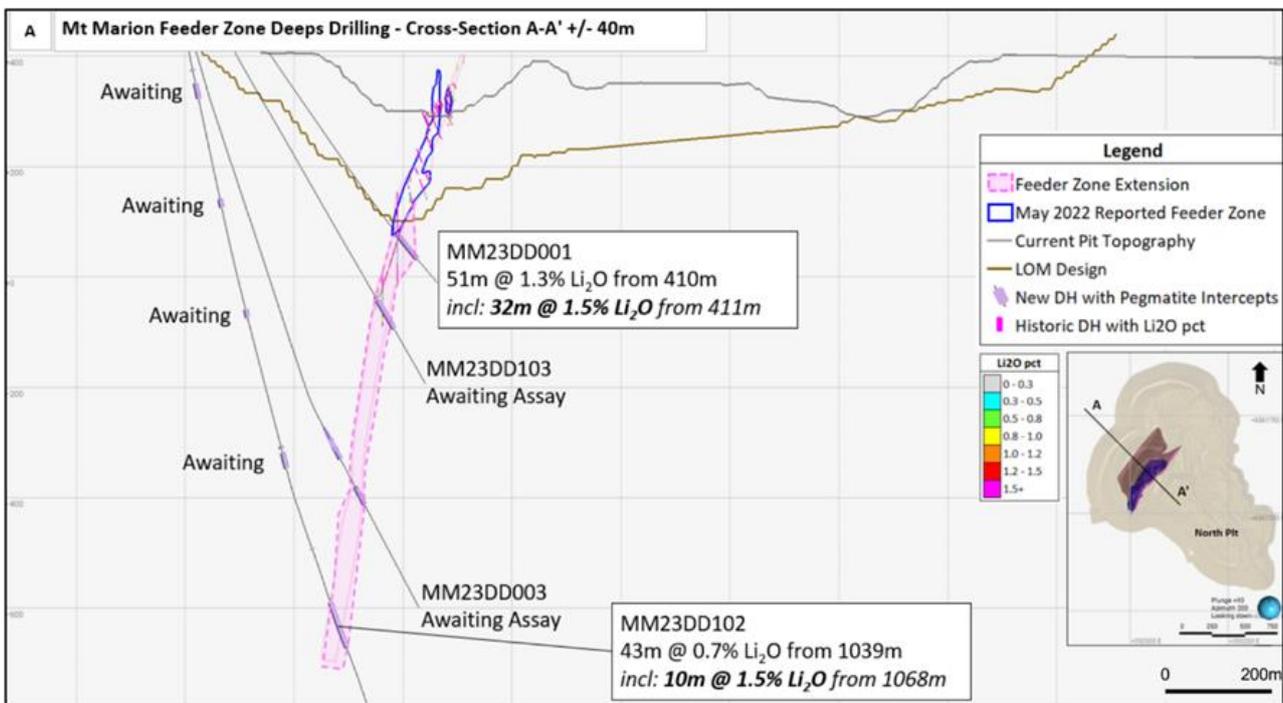


Figure 3: North Pit cross section showing focus of exploration for underground potential

## ENERGY

### Perth Basin

MinRes made a significant natural gas discovery at North Erregulla Deep-1 (NED-1). The NED-1 well is situated on Exploration Permit EP 368 in the northern sector of the onshore Perth Basin, approximately 8.3km south-east of the Locker Deep-1 natural gas discovery.

Drilling at NED-1 commenced on 28 April 2023 and the Kingia Sandstone objective was reached at 4,205m measured depth relative to the rotary table (MDRT). Elevated gas readings and high rates of penetration were encountered during full coring of the reservoir, which indicated excellent conventional properties.

Wireline logging confirmed a 37m gross pay interval between 4,205m and 4,242m MDRT. The interpreted net gas pay within this interval is approximately 28m, with an average porosity of 17%. Future gas appraisal wells will be required to determine the free water level and to further define the gas resource potential. A well test will be completed in August 2023 to evaluate gas flow rates and gas composition.

An oil zone was also identified in the secondary objective Dongara Sandstone at 3,238m MDRT. Oil fluorescence was observed over a gross 90m section from the top Dongara Sandstone into the Wagina Formation. Wireline log evaluation indicates a net oil pay within this interval of approximately 47m, with an average porosity of 13%. Future appraisal wells will further define any resource potential.

The next gas appraisal well Lockyer-3 (L3) commenced drilling on 25 June 2023, 2.7km northwest of the Lockyer Deep-1 discovery well. L3 will be drilled as a deviated well with a planned total depth of 4,625m MDRT.

## CONFERENCE CALL

A quarterly results conference call will be held on **26 July 2023 at 9:00am AWST**.

To register use this link: <https://web.lumiconnect.com/399486630> and enter meeting ID 399-486-630.

### ENDS

*This announcement dated 26 July 2023 has been authorised for release to the ASX by Mark Wilson, Chief Financial Officer and Company Secretary of Mineral Resources Limited.*

### Further Information

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#### About Mineral Resources

Mineral Resources Limited (ASX: MIN) (MinRes) is a leading diversified resources company, with extensive operations in lithium, iron ore, energy and mining services across Western Australia. With a focus on people and innovation, MinRes has become one of the ASX's best-performing companies since listing in 2006. For more information, visit [www.mineralresources.com.au](http://www.mineralresources.com.au).

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## OPERATING PERFORMANCE SUMMARY

	Units	FY23	FY22	Q4 FY23	Q3 FY23	Q4 FY22
<b>Safety</b>						
TRIFR		2.21	2.33	2.21	2.11	2.33
LTIFR		0.15	0	0.15	0.00	0.00
<b>Mining Services</b>						
Contract Tonnes	M wmt	248	274	58	52	64
<b>Yilgarn Hub (100% attributable basis, unless otherwise indicated)</b>						
Iron ore mined	k wmt	7,985	7,625	2,043	2,059	2,003
Iron ore produced	k wmt	8,234	9,273	1,973	2,078	2,082
Iron ore sales	k wmt	7,656	8,679	1,938	2,130	2,129
Lump weighting	%	19%	0%	30%	29%	0%
Fe grade	%	57.8%	56.8%	58.0%	58.4%	56.9%
Realisation	%	86%	57%	84%	89%	60%
Revenue	US\$/dmt	94.5	78.5	93.6	111.2	83.4
Moisture	%	5.7%	5.4%	5.6%	5.4%	6.1%
Revenue	\$/wmt	132.0	102.8	131.1	154.4	111.1
<b>Utah Point Hub (100% attributable basis, unless otherwise indicated)</b>						
Iron ore mined	k wmt	10,668	11,560	2,327	2,947	3,196
Iron ore produced	k wmt	11,637	11,221	2,496	2,929	2,953
Iron ore sales	k wmt	9,840	10,533	2,327	2,416	2,560
Lump weighting	%	22%	24%	15%	18%	24%
Fe grade	%	58.0%	58.0%	57.9%	57.8%	57.9%
Realisation	%	83%	62%	80%	85%	64%
Revenue	US\$/dmt	90.9	85.1	89.1	106.3	88.2
Moisture	%	12.8%	10.6%	13.3%	13.2%	10.9%
Revenue	\$/wmt	115.5	104.8	114.8	134.1	110.1
<b>Total Iron Ore</b>						
Iron ore sales	k wmt	17,496	19,212	4,264	4,546	4,689
Lump weighting	%	21%	13%	21%	23%	13%
Fe grade	%	57.9%	57.4%	58.0%	58.1%	57.5%
Realisation	%	84%	59%	82%	87%	62%
Revenue	US\$/dmt	92.4	82.1	91.3	108.7	85.9
Moisture	%	9.7%	8.3%	9.8%	9.5%	8.7%
Revenue	\$/wmt	122.7	103.9	122.2	143.6	110.5

	Units	FY23	FY22	Q4 FY23	Q3 FY23	Q4 FY22
<b>Mt Marion: Spodumene concentrate</b> (50% attributable basis, unless otherwise indicated)						
Spodumene ore mined (100% basis)	k dmt	2,122	1,908	615	537	409
Spodumene concentrate produced	k dmt	234	216	60	60	64
Spodumene concentrate shipped	k dmt	236	221	61	62	71
Weighted average grade shipped	%	3.7%	4.0%	3.7%	3.8%	3.3%
Spodumene concentrate shipped – SC6 equivalent	k dmt	149	152	39	40	39
High grade product contribution	%	28.1%	31.4%	18.7%	36.1%	7.1%
Revenue	US\$/dmt	3,337	1,733	2,589	3,367	2,645
<b>Wodgina: Spodumene concentrate</b> (40% attributable basis, unless otherwise indicated)						
Spodumene ore mined (100% basis)	k dmt	2,966	61	722	725	61
Spodumene concentrate produced	k dmt	148	8	41	44	8
Spodumene concentrate shipped	k dmt	150	18	37	49	9
Weighted average grade shipped	%	5.8%	5.8%	5.5%	5.6%	6.2%
Spodumene concentrate shipped – SC6 equivalent	k dmt	143	17	34	45	9
Spodumene concentrate shipped – spot sales	k dmt	9	9	-	-	-
Spodumene concentrate revenue – spot sales	US\$/dmt	5,131	2,201	-	-	-
<b>Wodgina: Lithium battery chemicals</b> (40% attributable basis, unless otherwise indicated)						
Conversion rate	x	7.5	-	7.8	7.4	-
Lithium battery chemicals produced	t	11,497	-	4,224	3,246	-
Lithium battery chemicals sold	t	7,286	-	3,492	1,504	-
Lithium battery chemicals revenue (excluding VAT)	US\$/t	50,936	-	40,484	74,781	-