

## Activities Report for the Quarter Ended 30 September 2023

Mount Ridley Mines Limited (ASX: MRD, “Mt Ridley” or “the Company”) is pleased to provide an Activities Report for work compiled during the September 2023 quarter.

### Highlights

- Sighter metallurgical leach tests using hydrochloric acid on beneficiated REE<sup>i</sup> clay samples returned extraction rates of up to 85% of high-value MagREO using 25g/l HCl.
- This follows earlier screen beneficiation tests which returned reasonably uniform grade upgrades of approximately 160%. Over 80% of the TREO is contained within 50% of the original sample’s mass when screened at -75 microns. (Table 1).
- 8,000m of resource-focused aircore drilling nears completion (Figure 2). The programme involves pattern drilling the 30km<sup>2</sup> central Mia area on sections 400m apart, with holes spaced between 100m and 400m, testing a 10km long trend of the highest-grade intersections from earlier drilling programmes. Intersections from the central Mia Prospect included:

<b>22m at 2,160 ppm TREO<sup>ii</sup></b>	<b>(23% MagREO<sup>iii</sup>)</b>	<b>from 11m</b>	<b>(MRAC1573)</b>
<b>26m at 1,780 ppm TREO</b>	<b>(23% MagREO)</b>	<b>from 30m</b>	<b>(MRAC1603)</b>
<b>6m at 5,374 ppm TREO</b>	<b>(39% MagREO)</b>	<b>from 24m</b>	<b>(MRAC1450)</b>
<b>8m at 3,951 ppm TREO</b>	<b>(28% MagREO)</b>	<b>from 39m</b>	<b>(MRAC1546)</b>
<b>15m at 1,675 ppm TREO</b>	<b>(32% MagREO)</b>	<b>from 24m</b>	<b>(MRAC1504)</b>
<b>9m at 2,367 ppm TREO</b>	<b>(16% MagREO)</b>	<b>from 42m</b>	<b>(MRAC1552)</b>
<b>41m at 3,970 ppm TREO</b>	<b>(23% MagREO)</b>	<b>from 15m</b>	<b>(MRAC1393)</b>
<b>24m at 1,965 ppm TREO</b>	<b>(23% MagREO)</b>	<b>from 33m</b>	<b>(MRAC1184)</b>
<b>21m at 1,906ppm TREO</b>	<b>(18% MagREO)</b>	<b>from 45m</b>	<b>(MRAC1082)</b>
<b>15m at 2,120 ppm TREO</b>	<b>(16% MagREO)</b>	<b>from 15m</b>	<b>(MRAC1234)</b>
<b>16m at 1,800ppm TREO</b>	<b>(23% MagREO)</b>	<b>from 27m</b>	<b>(MRAC1431)</b>

The central Mia Prospect weighted average drill-intersection grade above 700ppm TREO exceeds 1,500ppm TREO. It is projected that this grade may increase to above 2,400ppm TREO, using an upgrade rate of 160%, through a screen beneficiation process, and acid leach tests have shown the efficacy of HCl leaching to recover rare earth elements at a reasonable acid consumption.

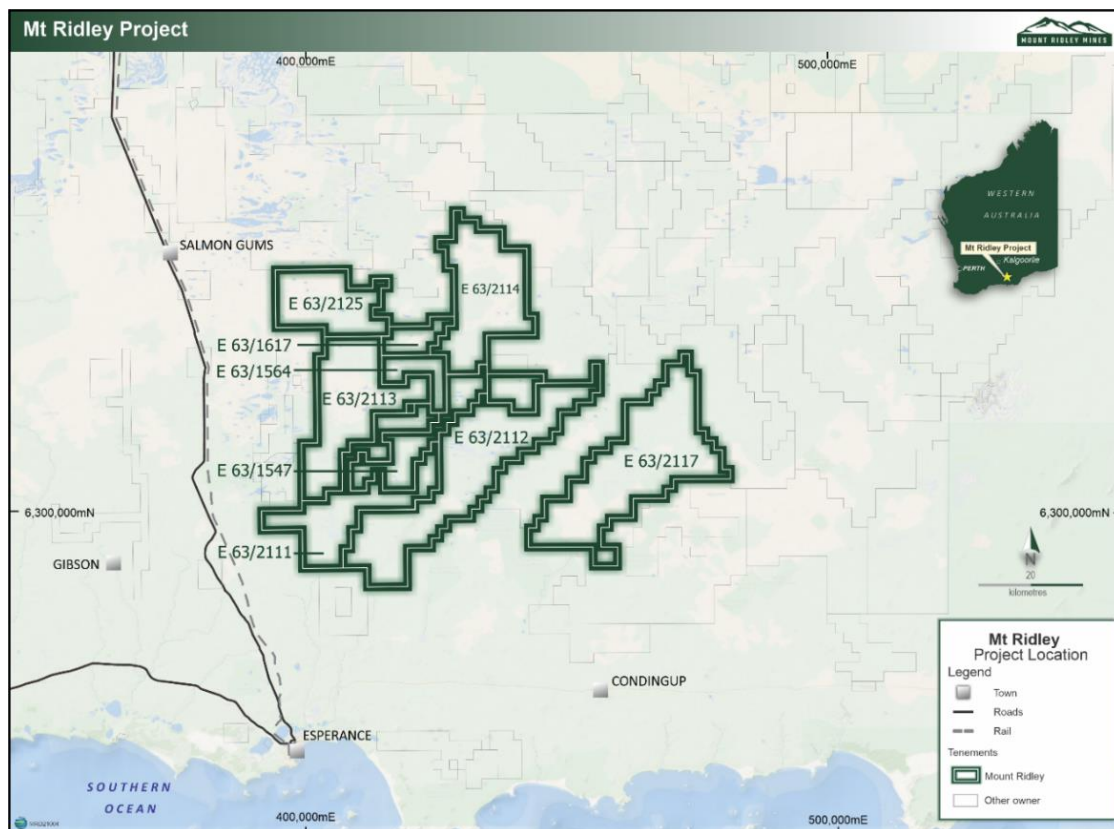
## Outlook

- Results from the current resource-focused aircore drilling programme are expected to be received in January 2024. When complete, this will be used to augment data used for a mineral resource estimate.
- The March 2024 quarter will focus on the study of metallurgical samples that have been collected during the current drilling programme at the central Mia Prospect. Work will include systematic beneficiation testing and slurry leach tests to provide an expectation of acid consumption, which is likely to be the largest ore-processing cost.
- The Company engaged South Australian process engineering group WGA, which has expertise in handling clay-hosted REE mineralisation. WGA was tasked with proposing a flow sheet, conducting test work for each of the stages and providing capital and operating cost estimates for each stage. Additionally, the Company is also using IMO as metallurgical consultants.

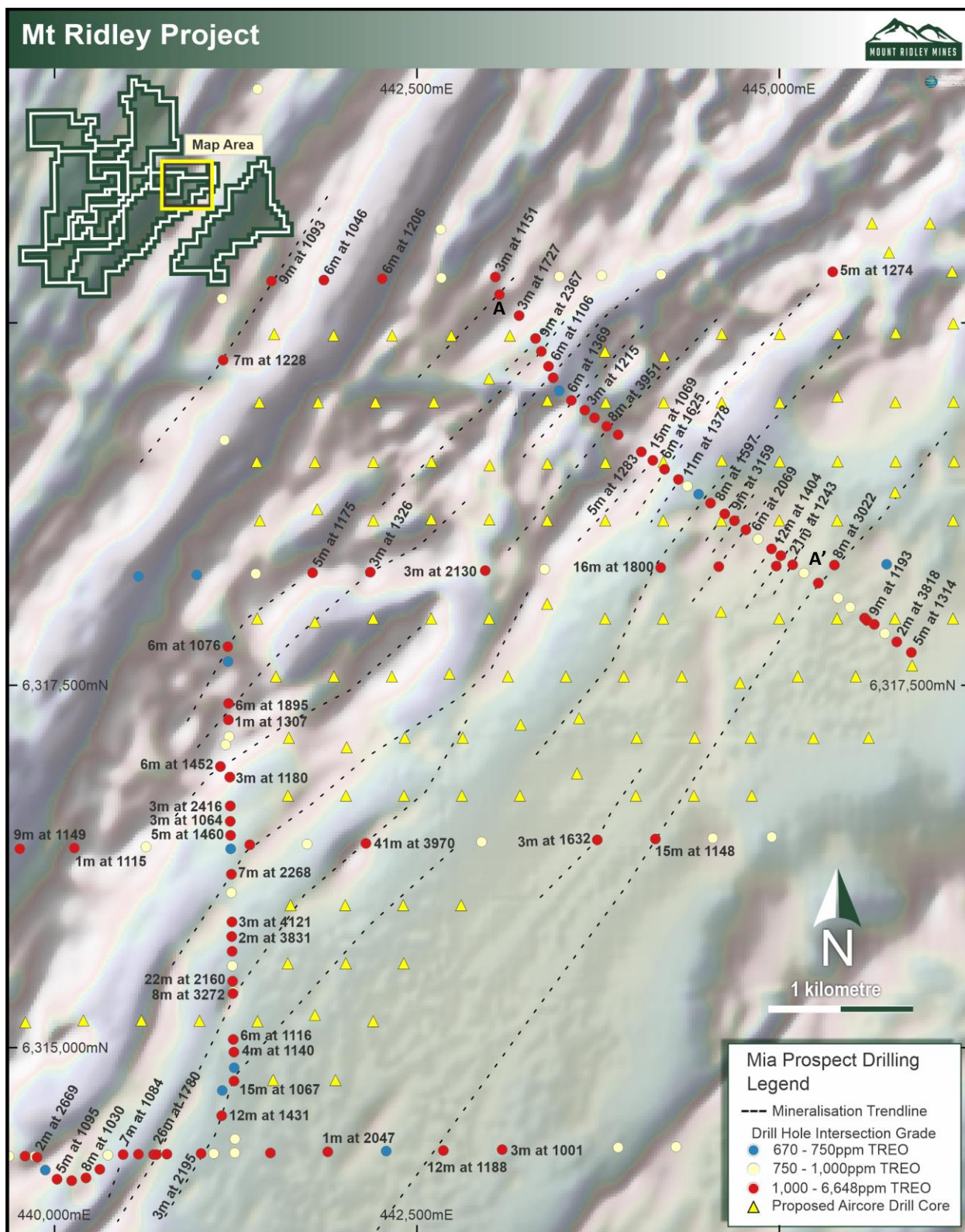
## EXPLORATION UPDATE

### Mount Ridley REE Project

The 100% owned Mount Ridley REE Project is located approximately 50km north-east of the Port of Esperance Western Australia, with an area covering approximately 3,400km<sup>2</sup>.



**Figure 1:** The Mount Ridley REE Project comprises 9 granted exploration licences in south-west Western Australia with an area of approximately 3,400km<sup>2</sup>.



**Figure 2:** 100m-spaced drill holes demonstrate that highly enriched REE mineralisation is continuous between earlier drill holes which were spaced at 400m intervals. Mineralisation often occurs along linear, magnetic 'ridges' seen in aeromagnetic imagery. Red dots are significant intersections with an average grade >1000ppm TREO (using a 700ppm TREO lower cut). Proposed infill drill holes are shown as yellow triangles.

## REE Mineralisation

Mineralisation within the Mia Prospect is found in elongated, parallel clay units, often coinciding with geological structures that are identifiable as 'ridges' in aeromagnetic imagery. The central Mia Prospect alone has a strike length exceeding 10km and a width of more than 3km. (Figures 2, 3 and 4).

## Beneficiation results for samples screened at –75 Microns

Beneficiation is a metallurgical process to physically increase the grade of ore, in this case by screening at 75 microns.

Tests indicated that more than 80% of the TREO is contained within 50% of the original sample mass, and that a coarse, low-grade fraction can be rejected when the sample is screened, resulting in a substantially improved grade.

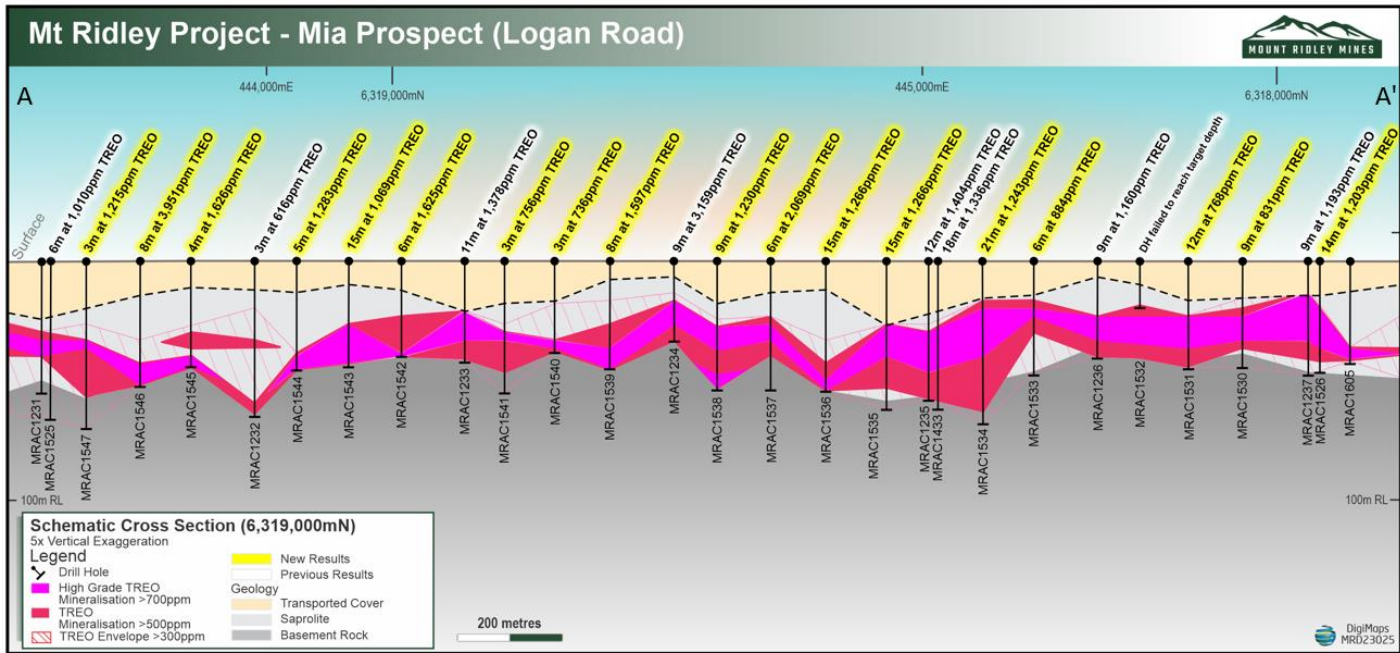
Samples taken from the Mia Prospect exhibited an average grade improvement of approximately 160%. Projecting this, mineralisation with an in-situ grade of 1,500ppm may increase to above 2,400ppm TREO through the screen beneficiation process. Importantly, with fewer tonnes to treat, a substantial reduction in the project's acid requirement and cost is likely.

## REE extraction using HCl acid leach

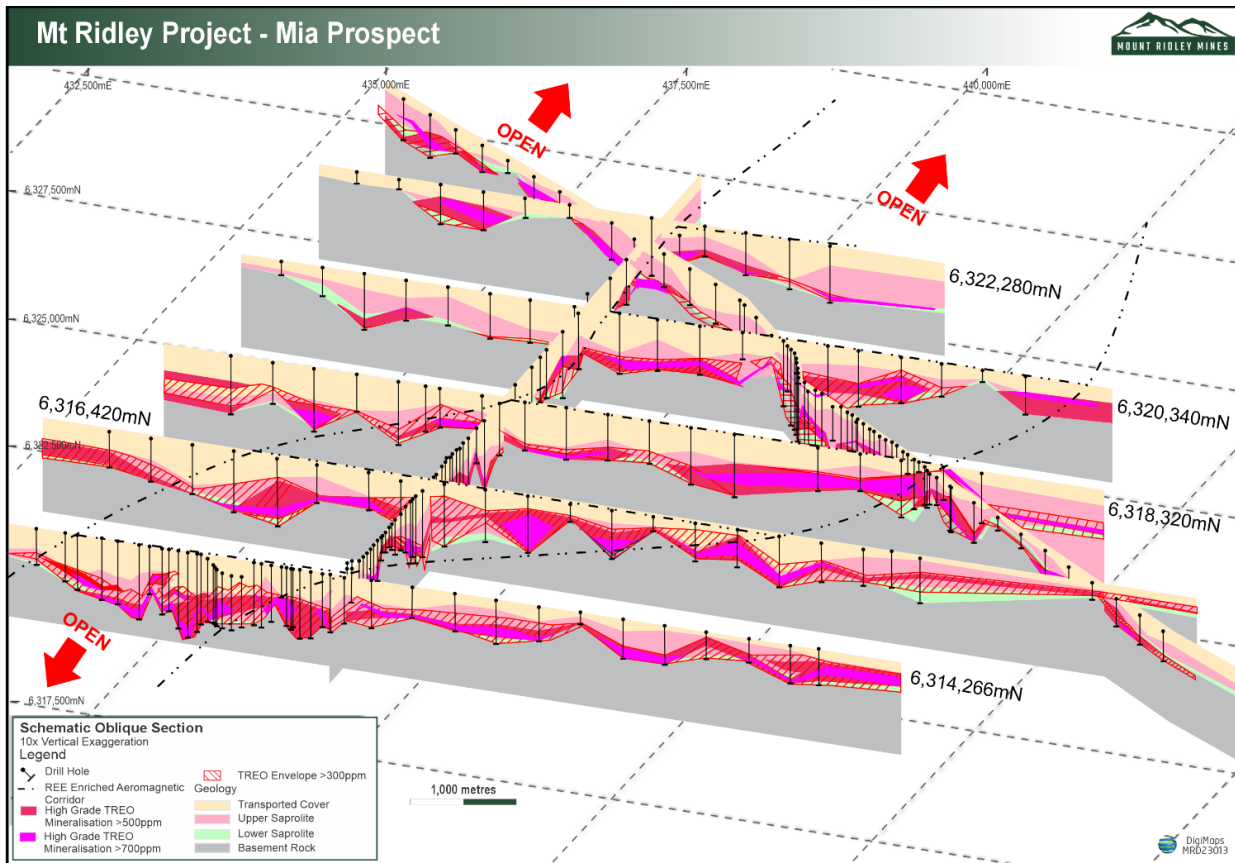
12 samples taken from the Mia, Jody, Winston and Vincent Prospects, being the products of prior screen beneficiation testing that were screened to -25 microns, underwent hydrochloric acid leaching at three strengths: 3.6g/l HCl (pH 1), 10g/l HCl and 25g/l HCl; and at a range of time from 6 hours to 24 hours.

A summary of beneficiation tests and 25g/l HCl acid leach tests (duration of 24 hours) are in Table 1.

Table 1: Summary of key samples from REE Extraction at 25g/l HCl over a leaching period of 24 hours						
Prospect	Mia	Winstons	Vincent	Vincent	Mia	Jody
Drill Hole	MRAC 1188	MRDD0036	MRDD0029	MRDD0029	MRAC1180	MRAC1146
Interval	57-63 m	51 - 52.6 m	30 - 34 m	34 - 39.2 m	9-17 m	33-44 m
Head Grade TREO (ppm)	6,304	8,952	2,470	1,366	2,771	1,033
Upgrade	142%	139%	191%	160%	190%	231%
-25 micron Grade TREO (ppm)	8,929	12,408	4,710	2,188	5,272	2,382
TREO Extracted	67%	35%	61%	76%	41%	61%
Mag REO Extracted	77%	27%	79%	85%	42%	60%
<b>Calc Recovered TREO (ppm)</b>	<b>5,979</b>	<b>4,301</b>	<b>2,886</b>	<b>1,658</b>	<b>2,172</b>	<b>1,453</b>



**Figure 3:** Cross section across the Mia Prospect, (refer to Figure 2 for location), which is 2.5km wide, showing thick zones of clay-hosted REE mineralisation. Drill holes are 100m apart. Infill holes are shown with yellow highlight. The vertical scale is 5x the horizontal scale.



**Figure 4:** Mia Prospect drilling. Stacked cross sections show drill holes and layered REE mineralisation. The grid lines are 2.5 km apart. The vertical scale is 10x the horizontal scale.

## About the Mount Ridley REE Project

The Company announced on 1 July 2021 that laterally extensive REE mineralisation had been identified at its namesake Mount Ridley Project.

The Mount Ridley Project is located from approximately 50 kilometres northeast of the deep-water port of Esperance, with a town of approximately 12,000 people which is a hub for tourism, agriculture, and fishing (Figure 1). The Port exports minerals including nickel sulphide, iron ore and spodumene.

The Project is approximately 20 kilometres east of the sealed Goldfields Esperance Highway and infrastructure corridor which includes the Kalgoorlie–Esperance railway line and gas pipeline. The Esperance airport is located at Gibson Soak, approximately 20 kilometres from the Project.

The Company acknowledges the Esperance Nyungar People, custodians of the Project area and thanks the Esperance Tjaltjraak Native Aboriginal Corporation for facilitating the Company's exploration programmes.

This announcement has been authorised for release by the Company's board of directors.

For further information, please contact:

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Chairman  
+61 8 6165 8858

David Crook  
Technical Manager  
+61 8 6165 8858

## Competent Person

The information in this report that relates to exploration strategy and results is based on information supplied to and compiled by Mr David Crook. Mr Crook is a consulting geologist retained by Mount Ridley Limited. Mr Crook is a member of The Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists and has sufficient experience which is relevant to the exploration processes undertaken to qualify as a Competent Person as defined in the 2012 Editions of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.

The information in this document that relates to metallurgical test work is based on, and fairly represents, information and supporting documentation reviewed by Mr Peter Adamini, BSc (Mineral Science and Chemistry), who is a member of The Australasian Institute of Mining and Metallurgy (AusIMM). Mr Adamini is a full-time employee of Independent Metallurgical Operations Pty Ltd, who has been engaged by Mt Ridley Mines Limited to provide metallurgical consulting services. Mr Adamini has approved and consented to the inclusion in this document of the matters based on his information in the form and context in which it appears.

With respect to JORC Table 1 included in MRD announcements to ASX dated:

- 2 August 2021. "REE Potential Unveiled at Mount Ridley".
- 13 September 2021. "REE Targets Extended".
- 21 October 2021. "Encouraging Rare Earth Extraction Results".
- 2 August 2022. "Excellent Drilling Results Expand Rare Earth Mineralisation Footprint at the Mt Ridley Project".
- 6 October 2022. "Highest grades to date returned from Mt Ridley Rare Earth Project, Mineralised footprint extended to more than 1,200km<sup>2</sup>".
- 14th February 2023. "Thick, shallow and high grade REE mineralisation discovered at the new Jody and Marvin Prospects".
- 30 March 2023. "Resource drilling commences on 30km long Mia - Marvin Zone at the Mount Ridley REE Project".
- Ridley REE Project".
- 10 May 2023. "Coincident High-Grade Rare Earth Elements and Geophysical Anomalies at Mia Prospect".
- 25 May 2023. "Drilling update for the Mia REE Prospect".
- 06 July 2023. "Excellent Beneficiation Test Results Lift REE Grades".
- 21 September 2023. "Leach tests achieve up to 85% recovery of Magnet REE".
- 6th October 2023. "Drilling confirms continuity at Mount Ridley REE Project".

Mount Ridley confirms that it is not aware of any new information or data that materially affects the information included in these announcements and that all material assumptions and technical parameters underpinning the exploration results 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.

## **Caution Regarding Forward Looking Information**

This announcement may contain forward-looking statements that may involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. No obligation is assumed to update forward looking statements if these beliefs, opinions, and estimates should change or to reflect other future development.

## **Additional ASX Information**

### **Summary of Exploration Expenditure (ASX Listing Rule 5.3.1)**

In accordance with Listing Rule 5.3.1, the Company advises the cash outflows on its mining exploration activities reported in 1.2(1) of its Appendix 5B for the September 2023 quarter and detailed above were \$732,426.

### **Mining Production and Development (ASX Listing Rule 5.3.2)**

There were no substantive mining production and development activities during the quarter.

### **Payment to Related Parties (ASX Listing Rule 5.3.5)**

The Company advises the payments in section 6.1 of Appendix 5B for the quarter related to Director fees.

### **The mining tenement interests acquired or relinquished during the quarter and their location**

Not applicable.



## About Mount Ridley Mines Limited

Mount Ridley is a company targeting demand driven metals in Western Australia.

Its namesake Mount Ridley Project, located within a Fraser Range sub-basin, was initially acquired for its nickel and copper sulphides potential, and is now recognised as being prospective for clay hosted REE deposits.

The Company also holds approximately 18% of the Weld Ranges in the mid-west of Western Australia. Areas of the tenements are prospective iron and gold.

## Board

Peter Christie	Non-Executive Chairman
Simon Mitchell	Non-Executive Director
Guy Le Page	Non-Executive Director
Johnathon Busing	Company Secretary

## Registered Office

Ground Floor  
168 Stirling Highway  
Nedlands WA 6009  
Telephone: +61 8 6165 8858

## Principal Place of Business

Lvl 1, 1297 Hay Street  
West Perth, WA 6005

## Forward Shareholder Enquiries to Advanced Share Registry

PO Box 1156  
Nedlands WA 6906  
Telephone: +61 8 9389 8033

## Issued Share Capital

As at the of this report, the total fully paid ordinary shares on issue were 7,784,882,867.

i REE means the 14 common rare earth elements; cerium (Ce), dysprosium (Dy), erbium(er), europium (Eu), gadolinium (Gd), holmium (Ho), lanthanum (La), lutetium (Lu), neodymium (Nd), praseodymium (Pr), samarium (Sm), terbium (Tb), thulium (Tm), ytterbium (Yb), Yttrium (Y) is usually included with REE.

ii TREO means the sum of the REE, each converted to its respective stoichiometric element oxide.

iii MagREO means the sum of  $Dy_2O_3$ ,  $Nd_2O_3$ ,  $Pr_6O_{11}$  and  $Tb_4O_7$ .

### TENEMENT INFORMATION (ASX Listing Rule 5.3.3)

The table below shows the interests in tenements held by Mount Ridley Mines and is provided in accordance with ASX Listing Rule 5.3.3.

Location	Project Name	Tenement #	Ownership	Titleholder	Note
Western Australia	Mt Ridley	E 63/1547	100%	Mount Ridley Mines Limited	
Western Australia	Mt Ridley	E 63/1564	100%	Mount Ridley Mines Limited	
Western Australia	Mt Ridley	E 63/1617	100%	Mount Ridley Mines Limited	
Western Australia	Mt Ridley	E 63/1719	100%	Mount Ridley Mines Limited	
Western Australia	Mt Ridley	E 63/2111	100%	Mount Ridley Mines Limited	
Western Australia	Mt Ridley	E 63/2112	100%	Mount Ridley Mines Limited	
Western Australia	Mt Ridley	E 63/2113	100%	Mount Ridley Mines Limited	
Western Australia	Mt Ridley	E 63/2114	100%	Mount Ridley Mines Limited	
Western Australia	Mt Ridley	E 63/2117	100%	Mount Ridley Mines Limited	1
Western Australia	Mt Ridley	E 63/2125	100%	Mount Ridley Mines Limited	
Western Australia	Weld Range West	E20/842*	100%	Zeendam Enterprises Pty Ltd	2
Western Australia	Weld Range West	E20/873*	100%	Zeendam Enterprises Pty Ltd	2
Western Australia	Weld Range West	E20/946*	100%	Zeendam Enterprises Pty Ltd	2

1. Odette Geoscience Pty Ltd has a 15% free-carried interest in E63/2117.
2. Mount Ridley Mines Limited beneficial owner.

## Appendix 5B

### Mining exploration entity or oil and gas exploration entity quarterly cash flow report

Name of entity

MOUNT RIDLEY MINES LIMITED

ABN

93 092 304 964

Quarter ended ("current quarter")

30 September 2023

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (3 months) \$A'000
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers		
1.2 Payments for		
(a) exploration & evaluation	(732)	(732)
(b) development	-	-
(c) production	-	-
(d) staff costs	(42)	(42)
(e) administration and corporate costs	(199)	(199)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	11	11
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	-
1.8 Other (GST & Other Refunds)	103	103
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(859)</b>	<b>(859)</b>

<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) tenements	-	-
(c) property, plant and equipment	-	-
(d) exploration & evaluation	-	-
(e) investments	-	-
(f) other non-current assets	-	-

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (3 months) \$A'000
2.2	Proceeds from the disposal of:		
	(a) entities	-	-
	(b) tenements	-	-
	(c) property, plant and equipment	-	-
	(d) investments	-	-
	(e) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (loan facility)	(2)	(2)
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>(2)</b>	<b>(2)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	-
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	-
3.4	Transaction costs related to issues of equity securities or convertible debt securities	-	-
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>-</b>	<b>-</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	3,490	3,490
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(859)	(859)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(2)	(2)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	-

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date (3 months) \$A'000</b>
4.5	Effect of movement in exchange rates on cash held	-	-
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>2,629</b>	<b>2,629</b>

<b>5.</b>	<b>Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	<b>Current quarter \$A'000</b>	<b>Previous quarter \$A'000</b>
5.1	Bank balances	2,629	3,490
5.2	Call deposits	-	-
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
<b>5.5</b>	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>2,629</b>	<b>3,490</b>

<b>6.</b>	<b>Payments to related parties of the entity and their associates</b>	<b>Current quarter \$A'000</b>
6.1	Aggregate amount of payments to related parties and their associates included in item 1	42
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-

*Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.*

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

<b>7. Financing facilities</b>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
<i>Note: the term "facility" includes all forms of financing arrangements available to the entity.</i>		
<i>Add notes as necessary for an understanding of the sources of finance available to the entity.</i>		
7.1 Loan facilities	-	-
7.2 Credit standby arrangements	-	-
7.3 Other (please specify)	-	-
7.4 <b>Total financing facilities</b>	-	-
7.5 <b>Unused financing facilities available at quarter end</b>		-
7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.		

<b>8. Estimated cash available for future operating activities</b>	<b>\$A'000</b>
8.1 Net cash from / (used in) operating activities (item 1.9)	(859)
8.2 (Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	-
8.3 Total relevant outgoings (item 8.1 + item 8.2)	(859)
8.4 Cash and cash equivalents at quarter end (item 4.6)	2,629
8.5 Unused finance facilities available at quarter end (item 7.5)	-
8.6 Total available funding (item 8.4 + item 8.5)	2,629
8.7( <b>Estimated quarters of funding available (item 8.6 divided by item 8.3)</b>	3.06
<i>Note: if the entity has reported positive relevant outgoings (ie a net cash inflow) in item 8.3, answer item 8.7 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.7.</i>	
8.8 If item 8.7 is less than 2 quarters, please provide answers to the following questions:	
8.8.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?	
N/A	
8.8.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?	
N/A	

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

8.8.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

N/A

*Note: where item 8.7 is less than 2 quarters, all of questions 8.8.1, 8.8.2 and 8.8.3 above must be answered.*

## Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 31 October 2023

Authorised by: Johnathon Busing

## Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 6: Exploration for and Evaluation of Mineral Resources* and *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg Audit and Risk Committee]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.