

ASX ANNOUNCEMENT

Heavy Rare Earths Limited (ASX:HRE)

31 July 2023

**JUNE 2023 QUARTERLY ACTIVITIES REPORT
AND APPENDIX 5B**

- Assays from final 98 holes at Cowalinya deliver high-grade rare earths up to 14 kilometres from newly discovered Western Zone
- Resource consultant engaged to update Mineral Resources and estimate Exploration Target for Cowalinya project
- Strategic Metallurgy completes diagnostic leach test work to support the design of a metallurgical flow sheet for Cowalinya
- Reconnaissance visit to Duke rare earth project identifies extensive area for first-pass systematic exploration
- New tenement for rare earths exploration granted in Western Australia
- Well-funded to progress with company objectives and exploration activities

Heavy Rare Earths Limited (“HRE” or “the Company”) is pleased to announce its June 2023 quarterly activities report for the fourth quarter since listing on the Australian Securities Exchange (ASX).

HRE’s key exploration project is Cowalinya in the Norseman-Esperance region of Western Australia. This is a clay-hosted rare earth project with a JORC Inferred Resource of 28 Mt @ 625 ppm TREO¹ and a desirable rare earth composition where 25% are the valuable magnet rare earths and 23% the strategic heavy rare earths.

Cowalinya Rare Earth Project, Western Australia***Resource Exploration and Expansion Program***

During the quarter the Company announced assays from the final 98 air core holes from its 441-hole resource exploration and expansion drilling program at Cowalinya (*refer to ASX announcements 12 April 2023 and 1 May 2023*) completed in the September-December 2022 period.

These assays included a number of rare earth-rich intercepts in saprolite in the project’s newly discovered Western Zone, including:

- **26 metres @ 1201 ppm TREO** from 19 metres (AC360)
- **7 metres @ 1173 ppm TREO** from 20 metres (AC511)
- **10 metres @ 1169 ppm TREO** from 19 metres (AC354)
- **14 metres @ 1164 ppm TREO** from 16 metres (AC359)
- **14 metres @ 1060 ppm TREO** from 28 metres (AC356).

¹ Table 5.1 of Appendix 7 (Cowalinya Resource Report) of the Independent Geologist’s Report contained in HRE’s IPO Prospectus.

Reporting of final assays from the Western Zone allows a high-level comparison between it and the more densely drilled Cowalinya resource (comprising the Cowalinya North and South deposits):

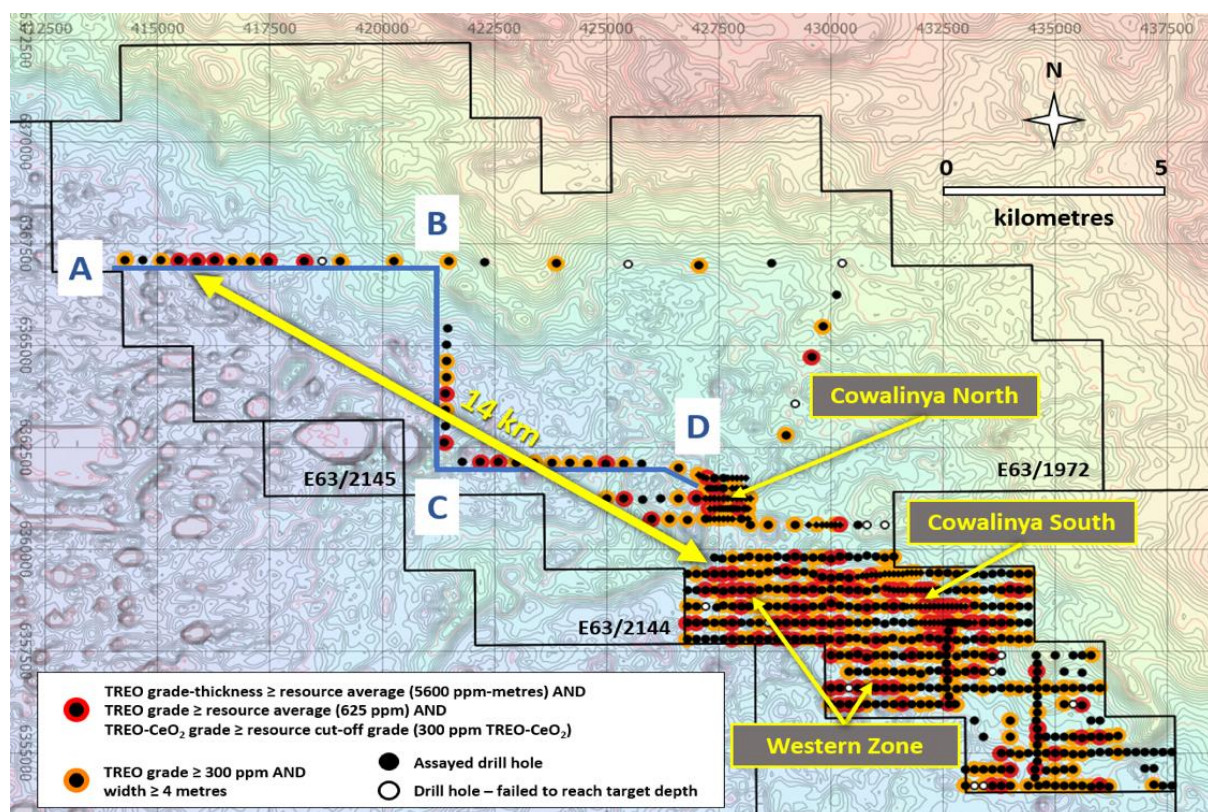
	COWALINYA	WESTERN ZONE
Area drilled	2.0 km ²	13.0 km ²
Drill spacing	50 metres x 150 metres 100 metres x 150 metres 100 metres x 400 metres	200 metres x 400 metres
Number of mineralised intercepts ¹	78	159
Average mineralised width	10 metres	11 metres
Average depth to mineralisation	19 metres	19 metres
Length-weighted average grade	697 ppm TREO	720 ppm TREO
Best ² mineralised intercept	19 metres @ 1659 ppm TREO (AC29)	19 metres @ 3190 ppm TREO (AC225)

¹ ≥ 4 metres @ ≥ 300 ppm TREO

² Based on grade-thickness

Figure 1: Plan view of air core drilling on E63/1972 showing holes with significant intervals of REE mineralisation, existing Cowalinya North and South resources, newly discovered Western Zone, and location of cross-section A-B-C-D (Figure 2).

Background image: Landgate digital elevation model.



Assays from 41 holes drilled along existing access tracks in the northern and central parts of E63/1972 returned numerous shallow, thick and/or high-grade intersections in 3 new areas up to 14 kilometres north-north-west of the Western Zone (Figures 1 and 2):

- **12 metres @ 1690 ppm TREO** from 16 metres (AC487)
- **7 metres @ 1303 ppm TREO** from 7 metres (AC473)
- **10 metres @ 1286 ppm TREO** from 16 metres (AC471)
- **8 metres @ 1113 ppm TREO** from 15 metres (AC494)
- 20 metres @ 977 ppm TREO from 20 metres (AC446)
- 30 metres @ 923 ppm TREO from 11 metres (AC468)
- 19 metres @ 811 ppm TREO from 11 metres (AC472)
- 31 metres @ 758 ppm TREO from 19 metres (AC467).

These intercepts add an exciting ‘blue-sky’ element to the project and could form the basis of a maiden Exploration Target and a future focus for rare earth exploration and definition drilling. They build on the Company’s success in demonstrating the widespread and coherent nature of rare earth mineralisation in closer proximity to the Cowalinya North and South deposits.

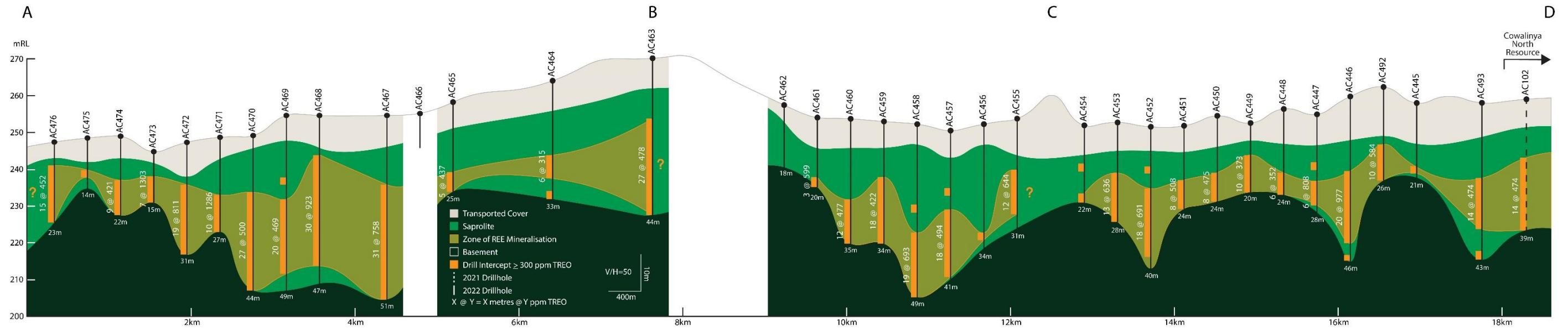
HRE has engaged a resource consultant to update Mineral Resources and estimate an Exploration Target for the Cowalinya project. The Company expects this work to be completed during Q3 2023. The resource update will use assays from 400 holes drilled in the 2022 campaign, mainly from the Western Zone. It will also involve re-estimating resources for the Cowalinya North and South deposits using new assays by Lithium Borate Fusion/ICP-MS on 2-metre sample composites from 102 holes drilled in 2021 (*refer to ASX announcement 26 October 2022*).

Metallurgical Program

HRE has commissioned Perth-based Strategic Metallurgy (“Strategic”) to design and undertake a comprehensive metallurgical program for the Cowalinya project, initially involving particle size analysis as the basis for gangue rejection. This work was completed during the December 2022 quarter on 13 four- and five-metre composite samples of rare earth-bearing saprolite from 10 drill holes across the Cowalinya South and North deposits. It showed an average of 78.5% of the rare earths are hosted in the fines (-25µm) fraction which comprises 37.2% of the bulk saprolite feed mass. Furthermore, simple recovery of the fines fraction delivered better than a two-fold increase in rare earth grade (*refer to ASX announcement 13 December 2022*).

These results enable the design of an upstream process flowsheet for the project that removes gangue from saprolite via simple screening and desliming cyclones.

Subsequent to the end of the quarter, the Company reported the results of diagnostic leaching tests by Strategic on the rare earths-containing fines fraction from the same 13 composites to determine the efficiency with which rare earths are brought into solution (*refer to ASX announcement 12 July 2023*). Tests were conducted with weak solutions of commercially available hydrochloric acid (“HCl”), sulphuric acid and ammonium sulphate. In all cases, the tests using HCl delivered superior rare earth solubility and acid consumption results. The key outcome was that the majority of composites (8 of 13 composites) showed both high leachability (>75%) of the magnet rare earths and low consumption (<40 kilograms per tonne of fines) of acid, with an average of 82.9% and 18.1 kg/t respectively.



The Company's continued development of a robust geo-metallurgical model for the Cowalinya deposit is being aided by sponsoring a 12-month research project *Characterisation of clay-hosted rare-earth element (REE) deposits in Western Australia* led by Perth-headquartered geological consulting, exploration management and contract geological services company RSC. The project's sponsors include other rare earth project proponents in the Esperance region and technology and analytical services organisations ANSTO and ALS. All rare earth project proponents are obligated to provide mineralised samples for analysis by RSC researchers. The project has been successful in attracting funds from the Minerals Research Institute of Western Australia (MRIWA).

Duke Rare Earth Project, Northern Territory

The Company's 100 per cent-owned Duke project in the Northern Territory comprises two granted exploration licences EL33101 and EL33194 approximately 50 kilometres north-west of Tennant Creek.

Exploration in the area of the tenement package has in the past focused on Tennant Creek-style ironstone hosted Cu-Au-Bi and Olympic Dam-type Cu-U-Au deposits, but this is the first time the area will be subject to exploration for rare earths. The exploration model being investigated by HRE is a Browns Range-style unconformity-related hydrothermal system, where rare earths are expected to be hosted in xenotime, a yttrium phosphate mineral that contains high concentrations of heavy rare earths ("HREE"). A secondary target for exploration at Duke is HREE-enriched ion-adsorption clay-type mineralisation hosted in saprolite developed on the extensive but poorly outcropping Warrego Granite.

During the quarter a reconnaissance visit to the project area was undertaken during which prominent thorium (Th) anomalies from a previous explorer's airborne radiometric survey were investigated on the ground using a portable XRF ("pXRF") and gamma-ray spectrometer. In addition, drill core from a historic hole designed to test a uranium (U) anomaly in the Warrego Granite (and in the same general area of the Th anomalies) was examined at the Northern Territory Geological Survey's core library in Alice Springs. A total of 4 rock chip and 2 drill core samples were submitted to LabWest Minerals Analysis ("LabWest") in Perth for assay.

Planning for a 2 to 3-week program to systematically explore a broad area of outcropping/subcropping Warrego Granite and adjacent rocks during Q3 2023 is almost complete. Plans may be modified on receipt of the above-mentioned assays from LabWest.

Perenjori and Merino Rare Earth Projects, Western Australia

During Q1 2023 the Company lodged applications with the Department of Mines, Industry Regulation and Safety (DMIRS) for four exploration licences over two project areas in the Mid West region of Western Australia: **Perenjori**, approximately 300 kilometres NNE of Perth (Figure 3); and **Merino**, about 95 kilometres SW of Mount Magnet (Figure 4). Both project areas were highlighted in an internal study targeting ionic adsorption-type rare earth deposits. Neither area has previously been explored for rare earths and, aside from government water bores, there is no evidence for exploration drilling of any kind.

PROJECT	TENEMENT	AREA	APPLICATION DATE	GRANT DATE	MINIMUM EXPENDITURE COMMITMENT (YEAR 1)
Perenjori	E70/6397	70 blocks	24/1/23	17/5/23	\$70,000
	E70/6398	39 blocks	24/1/23	-	\$39,000
Merino	E59/2795	56 blocks	20/2/23	-	\$56,000
	E59/2796	33 blocks	20/2/23	-	\$33,000

The underlying tenure at Perenjori comprises a mixture of pastoral lease and freehold, with only pastoral lease present at Merino. Native Title rights for both project areas are held by the Yamatji Nation.

Objections to the grant of three of the four tenements were lodged by affected parties as follows:

- E70/6398: Extension Hill Pty Ltd; MGM Pipelines Pty Ltd; Mount Gibson Mining Limited;
- E59/2795: FI Joint Venture Pty Ltd; Florance Holdings Pty Ltd;
- E59/2796: Florance Holdings Pty Ltd.

During the quarter, the northernmost of the two Perenjori tenements E70/6397 was granted by DMIRS. In addition, the Company executed an access deed with Florance Holdings Pty Ltd ("Florance") to facilitate the conduct of both its pastoral operations and HRE's exploration activities on the Wagga Wagga Pastoral Lease at Merino. This will result in Florance withdrawing its objection to the grant of both Merino project tenements, and pave the way for the subsequent grant of the southernmost of the two tenements E59/2796 by DMIRS.

HRE is reviewing access agreements advanced by the outstanding affected parties and will report progress on the grant of all remaining Perenjori and Merino tenements by DMIRS over the coming months.

The Company is also reviewing the Yamatji Nation Indigenous Land Use Agreement ("ILUA") particularly as it relates to the application of the ILUA's Standard Heritage Agreement ("SHA") on HRE's planned programs for Perenjori and Merino. On-ground exploration at both Perenjori and Merino cannot commence until HRE agrees to the terms of the Yamatji SHA.

Figure 3: Tenement applications for the Perenjori project.
 Background image: 1:250,000 scale Perenjori Topographic Map.

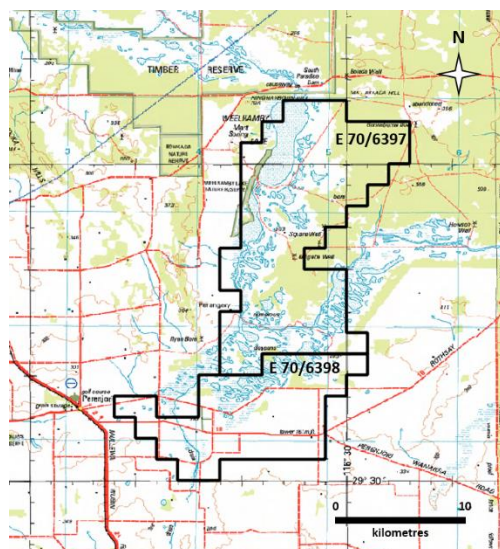
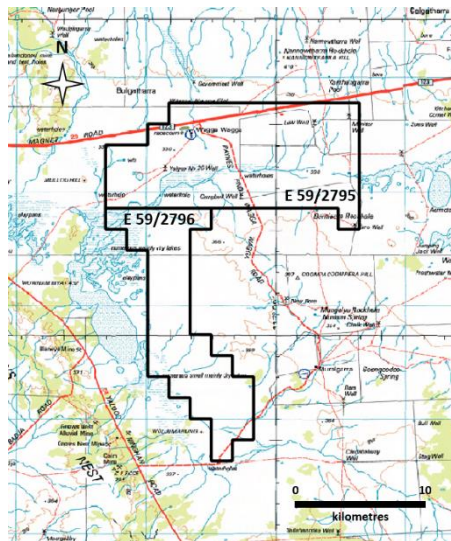


Figure 4: Tenement applications for the Merino project.
Background image: 1:250,000 scale Yalgoo and Kirkalocka Topographic Maps.



Additional Information

The table below compares the Company's actual expenditure against the 2-year Use of Funds table contained in the Company's IPO Prospectus dated 5 July 2022:

Use of funds as contained in the Prospectus	2-Year Use of Funds as contained in the Prospectus	Actual amount spent to date
Drilling – exploration & resource upgrade	\$2,340,000	\$1,648,900
Assaying	\$440,000	\$325,000
Metallurgical process development	\$325,000	\$37,200
Project Studies	\$400,000	-
Duke project exploration (NT)	\$100,000	\$40,500
Payment for Cowalinya vendors – exercise of option	\$300,000	\$300,000
Costs of the Offers	\$640,000	\$649,000
Administration & working capital	\$1,455,000	\$1,038,000
Total	\$6,000,000	\$4,038,600

Appendix 5B related party payments

Amounts included in section 6.1 of the Appendix 5B relate to Director's fees paid for the June 2023 quarter.

Interests in Mining Tenements

Below is a summary of the mining tenements held by the Company at the end of the quarter:

Mining Tenement	Location	Beneficial Percentage held	Interest acquired/farm-in or disposed/farm-out during the quarter
E63/1972 – Cowalinya Project	WA, Australia	100%	-
E63/2144 – Cowalinya Project	WA, Australia	100%	-
E63/2145 – Cowalinya Project	WA, Australia	100%	-
EL33101 – Duke Project	NT, Australia	100%	-
EL33194 – Duke Project	NT, Australia	100%	-
E70/6397 – Perenjori Project	WA, Australia	100%	-
E70/6398 – Perenjori Project	WA, Australia	100%*	-
E59/2795 – Merino Project	WA, Australia	100%*	-
E59/2796 – Merino Project	WA, Australia	100%*	-

* Subject to grant.

-- Ends --

This announcement has been approved by the Board of HRE.

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About Heavy Rare Earths Limited

Heavy Rare Earths Limited (ASX:HRE) is an Australian rare earth exploration and development company. HRE's key exploration project is Cowalinya, near Norseman in Western Australia. This is a clay-hosted rare earth project with a JORC Inferred Resource of 28 Mt @ 625 ppm TREO and a desirable rare earth composition where 25% are the valuable magnet rare earths and 23% the strategic heavy rare earths.

Competent Persons Statement

The Exploration Results contained in this announcement were compiled by Mr. Richard Brescianini. Mr. Brescianini is a member of the Australian Institute of Geoscientists (AIG). He is a director and full-time employee of Heavy Rare Earths Limited. Mr. Brescianini has more than 35 years' experience in mineral exploration and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 JORC Code.

The Mineral Resources contained in this announcement have been extracted from the Independent Geologist's Report included in the Company's Initial Public Offering (IPO) Prospectus, a copy of which was lodged with the Australian Securities and Investments Commission (ASIC) on 5 July 2022. The Company confirms that it is not aware of any new information or data that materially affects the Mineral Resources as contained in the Company's IPO Prospectus. All material assumptions and technical parameters underpinning the Mineral Resources in the Company's IPO Prospectus continue to apply and have not materially changed.

Heavy Rare Earths Limited (ASX:HRE)

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Appendix 5B

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

Name of entity

HEAVY RARE EARTHS LIMITED

ABN

35 648 991 039

Quarter ended ("current quarter")

30 June 2023

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 months) \$A'000
1.	Cash flows from operating activities		
1.1	Receipts from customers	-	-
1.2	Payments for		
	(a) exploration & evaluation	-	-
	(b) development	-	-
	(c) production	-	-
	(d) staff costs	(28)	(125)
	(e) administration and corporate costs	(142)	(869)
1.3	Dividends received (see note 3)	-	-
1.4	Interest received	5	25
1.5	Interest and other costs of finance paid	-	-
1.6	Income taxes paid	-	-
1.7	Government grants and tax incentives	-	-
1.8	Other (provide details if material)	-	-
1.9	Net cash from / (used in) operating activities	(165)	(969)
2.	Cash flows from investing activities		
2.1	Payments to acquire or for:		
	(a) entities	-	-
	(b) tenements	-	(340)
	(c) property, plant and equipment	-	-
	(d) exploration & evaluation	(319)	(2,062)
	(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 (12 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 (provide details if material)	-	-
2.6	Net cash from / (used in) investing activities	(319)	(2,402)

3.	Cash flows from financing activities		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	6,000
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	-	(649)
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)	-	-
3.10	Net cash from / (used in) financing activities	-	5,351

4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	2,605	141
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(165)	(969)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(319)	(2,402)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	5,351

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 (12 months) \$A'000
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	Cash and cash equivalents at end of period	2,121	2,121

5.	Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter \$A'000	Previous quarter \$A'000
5.1	Bank balances	2,121	2,605
5.2	Call deposits	-	-
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	Cash and cash equivalents at end of quarter (should equal item 4.6 above)	2,121	2,605

6.	Payments to related parties of the entity and their associates	Current quarter \$A'000
6.1	Aggregate amount of payments to related parties and their associates included in item 1	54
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-
<i>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.</i>		

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

7. Financing facilities <i>Note: the term "facility" includes all forms of financing arrangements available to the entity. Add notes as necessary for an understanding of the sources of finance available to the entity.</i>	Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
7.1 Loan facilities	-	-
7.2 Credit standby arrangements	-	-
7.3 Other (please specify)	-	-
7.4 Total financing facilities	-	-
7.5 Unused financing facilities available at quarter end		-
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.		
N/A		

8. Estimated cash available for future operating activities	\$A'000
8.1 Net cash from / (used in) operating activities (item 1.9)	(165)
8.2 (Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	(319)
8.3 Total relevant outgoings (item 8.1 + item 8.2)	(484)
8.4 Cash and cash equivalents at quarter end (item 4.6)	2,121
8.5 Unused finance facilities available at quarter end (item 7.5)	-
8.6 Total available funding (item 8.4 + item 8.5)	2,121
8.7 Estimated quarters of funding available (item 8.6 divided by item 8.3)	4.38
<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?	
Answer: 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?	
Answer: N/A	
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?	
Answer: N/A	
<i>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.</i>	

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 July 2023

Authorised by: The Board of Directors

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.