



ASX Announcement | 27 April 2023  
Hexagon Energy Materials Limited (ASX: HXG)

January – March 2023 (FYQ3) Quarterly Activities Report

***Hexagon engages leading engineering consultant Petrofac to undertake engineering analysis for the WAH<sub>2</sub> Preliminary Feasibility Study and progresses key commercial discussions regarding the flagship project.***

***Progress continued on the Company's Ni-Cu-PGE and Graphite initiatives.***

Hexagon Energy Materials Limited (ASX: HXG) ('Hexagon' or 'the Company') is pleased to provide this Quarterly Activities Report for the quarter ended 31 March 2023 (Q3 FY23).

Hexagon is an Australian-listed company focused on *Future Energy* project development and *Future Energy Materials* exploration and project development.

## EXECUTIVE SUMMARY

The March 2023 quarter saw further meaningful progress across strategic project areas defined by the Company over the course of the year, these being:

### Future Energy

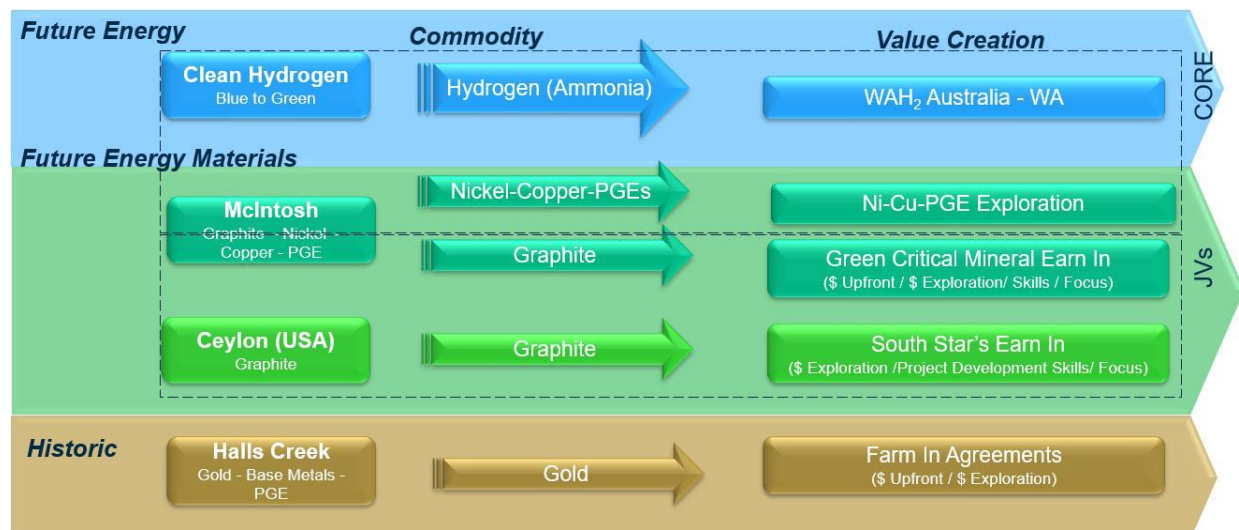
- WAH<sub>2</sub>

### Future Energy Materials

- McIntosh Ni-Cu-PGE
- Graphite – McIntosh and Ceylon (Alabama)

### Historic

- Halls Creek Au-Base Metal-PGE



## HEXAGON ENERGY MATERIALS LIMITED

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## 1. WAH<sub>2</sub>

The WAH<sub>2</sub> Project is Hexagon's flagship project to supply low-emissions 'blue' ammonia to the decarbonising powerhouse economies of the Asia Pacific, including Japan and South Korea.

The WAH<sub>2</sub> Project is well placed as the energy transition drives an increasing demand for low - emissions energy.

The WAH<sub>2</sub> Preliminary Feasibility Study (PFS) commenced during the period and is on track for completion in Q2 2023. Hexagon engaged leading engineering consultant Petrofac to undertake engineering analysis for PFS. The target remains Front End Engineering Design (FEED) entry Q4 2023 and FID Q4 2024, subject to the results of the PFS (HXG ASX Announcement 8 March 2023).

In summary, subject to the results and recommendations of the PFS, the WAH<sub>2</sub> Project:

- would use proven technology to reform natural gas to hydrogen
- would use proven technology to convert hydrogen to ammonia
- would evolve capture and storage of CO<sub>2</sub> in depleted gas reservoirs to deliver low-emissions hydrogen and ammonia.

The development of the global Ammonia (Hydrogen) market is accelerating. In 2022 some 680 large-scale hydrogen project proposals, equivalent to USD 240 billion in direct investment through 2030, have been put forward – an investment increase of 50% since November 2021. (Hydrogen Insights 2022, Hydrogen Council/McKinsey & Company, 2022).

In February 2021, METI's interim report of Fuel Ammonia's Roadmap set the target for use of fuel ammonia to 3 mt/y in 2030, and 30 mt/y in 2050 (equivalent to 5mt/y of hydrogen). It will do this through the following actions:

- by introducing the use of 20% co-firing in power generation by 2030
- increasing the co-firing rate (50%) and commercialise the technology for fuel ammonia power generation by 2050
- promoting exports to the Southeast Asian market through international standardisation and co-firing technology.

Japan is seeking Ammonia producers across the globe to support their efforts in decarbonising their power industries.

Chairman Charles Whitfield commented: *"The coming few months will be very exciting for the WAH<sub>2</sub> Project. After completion of the initial study at the end of last year to highlight any "red flags" the project team is now moving forward apace. In parallel with the progression of the study – conversations with important partners are being progressed and we hope that these will be announced in the coming months".*

## 2. McIntosh Ni-Cu-PGE

Hexagon's McIntosh Project in the West Australian Kimberly region lies in the centre of an area known for active Ni-Cu-PGE extraction. McIntosh is surrounded by well-established Nickel and/or PGE producers, exporters and substantial Ni-Cu-PGE JORC resources. Over the past three years, Hexagon has undertaken substantial appraisal work to establish the geology of the project.

Assay results were pending during the period from the first phase of the RC drilling program completed at Hexagon's McIntosh Ni-Cu-PGE project at IP Anomaly A & B and Anomaly 22 & 9 (HXG ASX Announcement 22 November 2022).

Plans to test the Pantom Peridotite Target Area, Pantom Gabbro Target Area and the Wild Dog Creek (WDC) Gabbro 1 Target Area (HXG ASX Announcement 7 November 2022) will be strategically considered for the conclusion of the current wet season in Q1 2023 and following receipt of results of pending assays from the RC drill program.

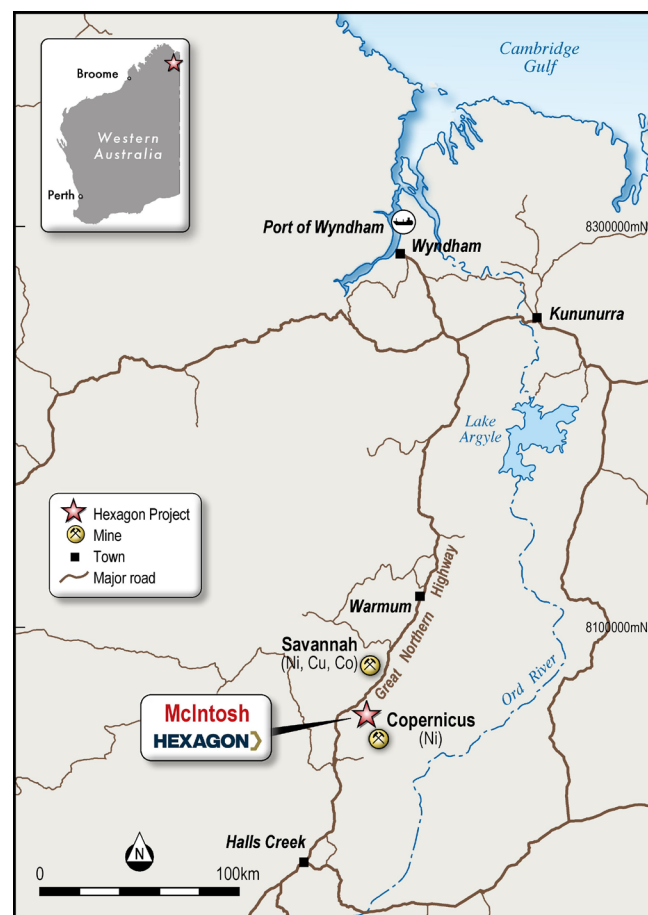


Figure 2 - Location map for Hexagon's McIntosh Project

### 3. Graphite – McIntosh and Ceylon (Alabama)

#### 3.1 McIntosh

During the period Hexagon continued to work with Green Critical Minerals Pty Ltd (GCM) who are executing a Binding Terms Sheet Earn-In Agreement with Hexagon signed in February 2022 (HXG ASX Announcement 14 February 2022).

Under the terms of the Agreement Green Critical Minerals (GCM) has the right to earn up to 80% interest in the Graphite Mineral Rights **only** across Hexagon's McIntosh Project tenements. The tenements will remain wholly held/managed by Hexagon. The Agreement will bring cash and exploration funding to Hexagon and leverage off past investments made by the Company.

It is expected that Q2 2023 will see the mobilization of the GCM drill program and Q4 2023 the second payment of \$200,000 to Hexagon.

### 3.2 Ceylon (Alabama)

South Star Battery Metals Corp (TSXV:STS, OTCQB: STSBF) (South Star) are executing a Binding Earn-In and Option Agreement on Hexagon's Ceylon Graphite Project located in Alabama, USA (HXG ASX Announcement 4 November 2021). The agreement provides the right for South Star to acquire 75% in the project in return for C\$750,000 in expenditure on the project within agreed guidelines.

During the period South Star progressed the 43-101 Maiden Resource Report which is due imminently.

It is expected that Q2 2023 will see mobilization to complete an additional 1500-2000m of drilling with Preliminary Economic Analysis (PEA) completion in Q4 2023.

## 4. Halls Creek Au-Base Metal-PGE

The Halls Creek Au-Base Metal-PGE targets remain a core asset and strategic project, and while Company resources were not directed to this project during the period, management plans to assess results from nearby McIntosh Ni-Cu-PGE drill assays from the period to efficiently direct activities at Halls Creek in 2023.

## FURTHER PROJECT DETAILS

### 1. **WAH<sub>2</sub> PROJECT OUTLINE**

#### 1.1 WAH<sub>2</sub> Methodology

Competitive, low-carbon, low-risk hydrogen is proposed to be delivered by using proven technology to reform natural gas feedstock, carbon capture and storage (CCS) in depleted gas reservoirs and harnessing northern Western Australia's renewable energy potential.

#### 1.2 WAH<sub>2</sub> Energy carrier

The produced hydrogen is proposed to be converted to low-carbon ammonia as the most appropriate energy carrier. This offers reduced processing and transportation costs and greater energy-efficiency than the alternatives of liquid hydrogen or liquid organic hydrogen carriers – and aligns with customers' need for ammonia (HXG ASX Announcement 8 March 2023).

#### 1.3 WAH<sub>2</sub> Site location

Hexagon awaits the imminent result of the Company's application to the WA Government for a long-term lease over its preferred site (HXG ASX Announcements 26 July, 31 October & 30 November 2022).

The site in the Maitland Strategic Industrial Area (SIA) in North-Western Australia is proximal to services, with established export routes and an existing infrastructure corridor. It is well-placed to access key Asian markets such as Japan and South Korea and to provide domestic supply to Australia (HXG ASX Announcements 26 July & 31 October 2022).

## 1.4 WAH<sub>2</sub> Gas supply

The WAH<sub>2</sub> feed-gas requirement is small in the context of the WA gas market. There are several potential suppliers with access to existing distribution infrastructure and Phase 1 of the project would consume only ~2% of Western Australia's forecast daily gas supply at the expected time of start-up (Base Case, WA GSOO 2022).

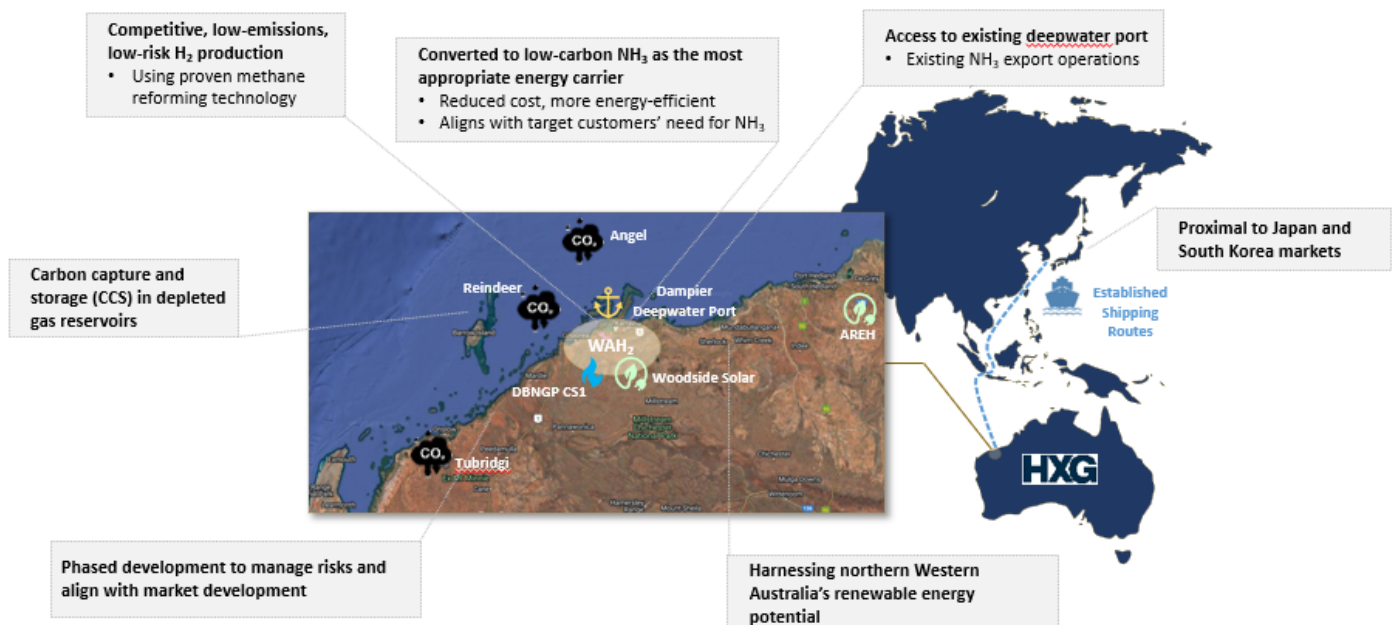


Figure 3 – WAH<sub>2</sub> Project Outline – PFS Focus

## 2. WAH<sub>2</sub> PROJECT SUMMARY

### 2.1 Preparatory studies completed in Q4 2022 confirmed the project concept

- Growing Asia Pacific demand for clean energy with North-Western Australia well placed to supply
- Cost and schedule advantages over electrolysis-based alternatives
- Availability of required inputs – natural gas, power and water
- Capacity and readiness of CO<sub>2</sub> sequestration aligned with WAH<sub>2</sub> project timeline.

### 2.2 Current PFS work is focusing on identified key levers to drive maximum value

- Consideration for differing H<sub>2</sub> production technologies and assessment of tangible differences in cost, utility requirements and CO<sub>2</sub> emissions
- Assessment of economies of scale to appropriately balance production capacity and cost
- Engaging with Government and industry on potential multi-user infrastructure to further drive down unit costs
- Defining an appropriate path to net zero before 2050.

### 2.3 The WAH<sub>2</sub> Project is on track to enter 'Select' phase by mide 2023 subject to PFS results

- Completion of WAH<sub>2</sub> PFS Report in Q2 2023
- Targeting award of 'Option to Lease' over preferred Maitland Strategic Industrial Area site in Q2 2023
- Progression of commercial discussions regarding gas supply, utilities supply, CO<sub>2</sub> sequestration and ammonia offtake.

### 3. WAH<sub>2</sub> ENGINEERING STUDIES

Engineering studies are being undertaken by Petrofac and are focused on determining the appropriate choice of hydrogen production technology, the appropriate production capacity for Phase 1 and Phase 2 of the WAH<sub>2</sub> Project, and the associated capital and operating costs for the WAH<sub>2</sub> Project (Association for the Advancement of Cost Engineering International Class 4 cost estimate).

Potential access to multi-user infrastructure including utilities import, product export and CO<sub>2</sub> transmission offer opportunities to reduce unit costs and leverage economies of scale.

### 4. WAH<sub>2</sub> TIMELINE

Q2 2023	<ul style="list-style-type: none"> <li>• Complete WAH<sub>2</sub> Preliminary Feasibility Study Report</li> <li>• Secure Option to Lease from WA Government over preferred project site</li> <li>• Progress commercial discussions</li> </ul>
Subject to positive feasibility outcome and recommendations:	
Q3 - Q4 2023	<ul style="list-style-type: none"> <li>• WAH<sub>2</sub> Concept Selection Studies</li> <li>• Binding commercial agreements for project inputs (conditional on FID) prior to FEED entry</li> <li>• FEED entry by end 2023</li> </ul>
Q1 - Q4 2024	<ul style="list-style-type: none"> <li>• FEED Studies</li> <li>• Unconditional binding commercial agreements for project inputs prior to FID</li> <li>• FID by end 2024</li> </ul>

## CORPORATE

During the March 2023 quarter:

- Hexagon continued its rationalisation and cost reduction program. As part of the Company's drive to make as much progress with as little expenditure as possible, the Hexagon board did not seek to replace the MD position
- Hexagon hosted an Investor Update Presentation and Townhall on the WAH<sub>2</sub> Project on 23 March 2023 (HXG ASX Announcement 23 March 2023)
- Hexagon's cash position at the end of the quarter was \$1.8 million
- The Company paid the amounts noted at Item 6.1 on the Appendix 5B, being payments of \$72,000 to related parties and their associates. This was the aggregate amount paid to the directors including directors' fees and consulting fees.

### Authorisation

This announcement has been authorised by the Board of Directors.



## About Hexagon Energy Materials Limited

Hexagon Energy Materials Limited (ASX: HXG) is an Australian company focused on *Future Energy* project development and *Future Energy* materials exploration and project development.

Hexagon 100% owns the McIntosh Nickel-Copper-PGE and Graphite project in Western Australia and the Halls Creek Gold and Base metals project in WA.

Hexagon is also developing a business to deliver decarbonised Hydrogen (blue Ammonia) into export and domestic markets at scale, via its WAH<sub>2</sub> Project.

Hexagon's plan is to use renewable energy in clean Hydrogen production to the greatest extent possible in its projects, transitioning from blue to green Hydrogen production on a commercial basis, over time.

Hexagon's overarching goal for 2023 is to secure and leverage technical and commercial alliances by commodity across its project portfolio whilst maintaining a core focus on Northern Australian Future Energy and Future Energy Materials project development, in-house.

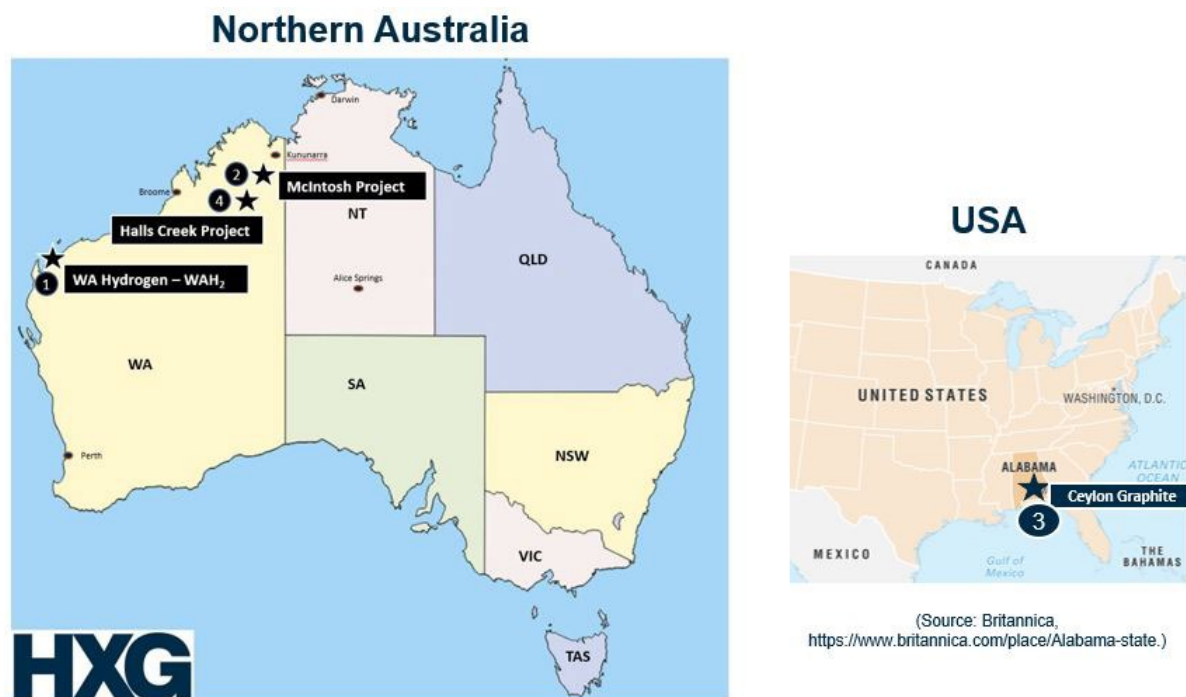


Figure 4 - Locations of Hexagon's projects

To learn more please visit: [www.hxgenenergymaterials.com.au](http://www.hxgenenergymaterials.com.au)

## FOR FURTHER INFORMATION,

### Investors Contact:

#### Hexagon Energy Materials Ltd

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Chairman

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**Competent persons' attributions**

The information within this report that relates to exploration results including geological data for the McIntosh Project and Halls Creek Project is based on information generated and compiled by Mr Michael Atkinson. Mr Atkinson is a consultant to Company and a member of The Australian Institute of Geoscientists. He has sufficient experience relevant to the styles of mineralisation and types of deposits under consideration and to the activities currently being undertaken to qualify as a Competent Person(s) as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results Mineral Resources and Ore Reserves and he consents to the inclusion of the above information in the form and context in which it appears in this report.



## Appendix 5B

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

Name of entity

HEXAGON ENERGY MATERIALS LIMITED

ABN

27 099 098 192

Quarter ended ("current quarter")

31 March 2023

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (9 months) \$A'000
<b>1.</b>	<b>Cash flows from operating activities</b>		
1.1	Receipts from customers	-	-
1.2	Payments for		
	(a) exploration & evaluation	(93)	(1,002)
	(b) development	(104)	(139)
	(c) production	-	-
	(d) staff costs	(53)	(126)
	(e) administration and corporate costs	(88)	(524)
1.3	Dividends received (see note 3)	-	-
1.4	Interest received	4	10
1.5	Interest and other costs of finance paid	-	-
1.6	Income taxes paid	-	-
1.7	Government grants and tax incentives	767	1,074
1.8	Other (Green Critical Minerals/Chase Mining Transaction for WA Graphite)	-	300
<b>1.9</b>	<b>Net cash from / (used in) operating activities</b>	<b>433</b>	<b>(407)</b>
<b>2.</b>	<b>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	(4)	(188)
	(e) investments	-	-
	(f) other non-current assets	-	-

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date (9 months) \$A'000</b>
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)	-	-
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>(4)</b>	<b>(188)</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 (Office Rental Lease Liability)	-	-
<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	1,375	2,399
4.2	Net cash from / (used in) operating activities (item 1.9 above)	433	(407)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(4)	(188)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	-

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date (9 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>1,804</b>	<b>1,804</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	784	1,355
5.2	Call deposits	1,020	20
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>1,804</b>	<b>1,375</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	72
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-
<i>6.1 - Payments to Directors</i>		

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

<b>7. Financing facilities</b> <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>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
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)	433
8.2 (Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	(4)
8.3 Total relevant outgoings (item 8.1 + item 8.2)	429
8.4 Cash and cash equivalents at quarter end (item 4.6)	1,804
8.5 Unused finance facilities available at quarter end (item 7.5)	-
8.6 Total available funding (item 8.4 + item 8.5)	<b>1,804</b>
8.7 <b>Estimated quarters of funding available (item 8.6 divided by item 8.3)</b>	<b>4.2</b>
<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: 27 April 2023

Authorised by: Board of Directors  
(Name of body or officer authorising release – see note 4)

**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.