



Directors:

Chair
Tim Wall

Managing Director
Gavin Loyden

Non-Executive Director
Daniel Harris

Non-Executive Director
David Fitch

Julia Creek Project:



QEM Limited:

Registered Office:
Level 8
216 St Georges Tce
Perth WA 6000
Australia
+61(0) 8 9481 0389

Head Office:
Level 6
50 Appel St
Surfers Paradise Q 4217
Australia
+61(0) 7 5646 9553

qldem.com.au
info@qldem.com.au

ASX Announcement

27 July 2023

Quarterly update for the period ending 30 June 2023

Highlights:

- QEM Scoping Study due to be completed in third quarter 2023, including mining schedule, pit optimization and flowsheet.
- Shortlist announced for renewables project developers interested in building, owning and operating the hybrid solar and wind project.
- QEM secured second Circular Economy opportunity with Incitec Pivot to upcycle Queensland industrial waste to battery grade vanadium pentoxide (V_2O_5).

QEM Limited (ASX: QEM) ("**QEM**" or "**Company**") is pleased to provide an update on its activities for the quarter ending 30 June 2023.

QEM Managing Director Gavin Loyden said with increased international focus on Queensland's critical minerals endowment through the World Mining Congress and the release of Critical Minerals Strategies by the Queensland and Australian Governments last quarter, QEM has continued progressing toward completing its scoping study and securing additional opportunities to process industrial waste to battery grade vanadium pentoxide.

"QEM has reached important milestones on the Julia Creek Project (JCP) Scoping Study, completing the mining schedule and pit optimization for the 30-year mine life" Mr. Loyden said.

"We are working with the University of Queensland's Sustainable Minerals Institute ("**SMI**") on maximizing the economic value of our vanadium resource via beneficiation, and globally experienced Cartledge Mining and Geotechnics on the preliminary studies for the mine pit."

"Significantly, we have secured a second industrial waste stream access agreement with Incitec Pivot Limited ("**IPL or Incitec**"), following the agreement reached with Sun Metals earlier in March, to provide QEM with spent vanadium-bearing catalyst, used in the production of sulphuric acid."

"We have shortlisted three global developers that are interested in building, owning and operating the hybrid wind and solar project. QEM has prioritized the design and development of the Julia Creek Renewable Energy Project ("**JCRP**") with the primary objective of obtaining cheaper renewable energy for the JCP."



Mining

Scoping Study – RPM Global

The Scoping Study for the Julia Creek Project commenced on 31 March 2023 and is advancing, with completion expected Q3 2023.

Progress this Quarter includes:

- Mining schedule and pit optimisation (30 years mine life); complete
- Fleet estimation; complete
- Deposit characterisation; complete
- Draft layout; complete
- Environmental section; complete

Expected during this reporting period:

- Completion of the Beneficiation Study
- Process optimisation for vanadium extraction.
- Completion of CAPEX/OPEX model.

Geotechnical study- Cartledge Mining and Geotechnics

Cartledge Mining and Geotechnics were engaged on 11 April to conduct a preliminary geotechnical investigation of the proposed mine pit to feed into the pre-feasibility study (PFS). Drilling for the geotechnical study is being carried out as part of the 2023 JCP resource exploration campaign in July.

Cartledge Mining and Geotechnics provide geotechnical solutions and advisory services to the mining industry. The team has global experience having worked in, Australia; England; Scotland; Wales; PNG; Indonesia; America; Canada; South Africa; Madagascar; Suriname; Zambia; Zimbabwe; China; Mongolia; Kazakhstan; Turkey; Chile; Brazil; Argentina; Colombia and, the Solomon Islands

Processing

Vanadium Extraction, flowsheet development – GSA Environmental

The test program has continued throughout the reporting period. GSAe UK have produced the initial flow sheets for both acid and alkaline methods of extraction. These are currently being optimised in-line with the beneficiation studies to further inform the Julia Creek Project's Flow Sheet development.

Vanadium beneficiation - University of Queensland (UQ)

Work with UQ's Sustainable Minerals Institute (SMI) on potential vanadium beneficiation routes to further improve V₂O₅ yields, post oil extraction is ongoing. The examination of mineral deportment, association and liberation of the key mineral phases shows that the most promising separation route is likely to be the reverse flotation of calcite, where the barren mineral phase is rejected in the flotation concentrate, leaving behind more valuable concentrated tailings.



QEM is also now engaged with UQ's WH Bryan Mining Geology Research Centre to gain deeper insights to the characterisation of vanadium mineral hosts within the resource base to get the best possible understanding of the rock characteristics, information that will inform the Pre-feasibility studies to follow.

The Centre's capabilities combine economic geology, geophysics, environmental geochemistry, geotechnical, underground mass mining, mineral chemistry, structural geology and tectonics, geometallurgy, mineral processing and data analytics.

Pilot Plant operations – HRL Technology

On 31 May, HRL was engaged to conduct a further two pilot plant runs, with the aim of collecting samples for further petrology analysis. These tests began post reporting period, with produced oil being sent to Eurofins Scientific for analysis. Results will become available during the next reporting period.

Environmental

Water Monitoring – ATC Williams

ATC Williams continued monthly sampling events in Julia Creek. The water monitoring program continued throughout the reporting period with 6 site visits by ATC Williams and QEM personnel, collecting samples from various site locations. The monitoring program will continue for a minimum of 12 months to characterise environmental baseline conditions and inform the engineering design for tailings storage facilities.

Resource Exploration 2023

Measured Group began planning for the 2023 Drilling campaign in late March. The program includes 12 drilling locations for the purpose of resource exploration and definition, geotechnical studies and water boreholes. Material from the overburden levels will also be collected for waste characterisation and two 2D seismic survey lines will also be included in the program.

Allstate Drilling has been engaged for the drilling program and Velseis Seismic Technologies will conduct the 2D seismic survey.

Conduct and compensation agreements (CCAs) were issued and executed by the landholders in May and the program began, post reporting period on 10 July, with completion due 31 July 2023.

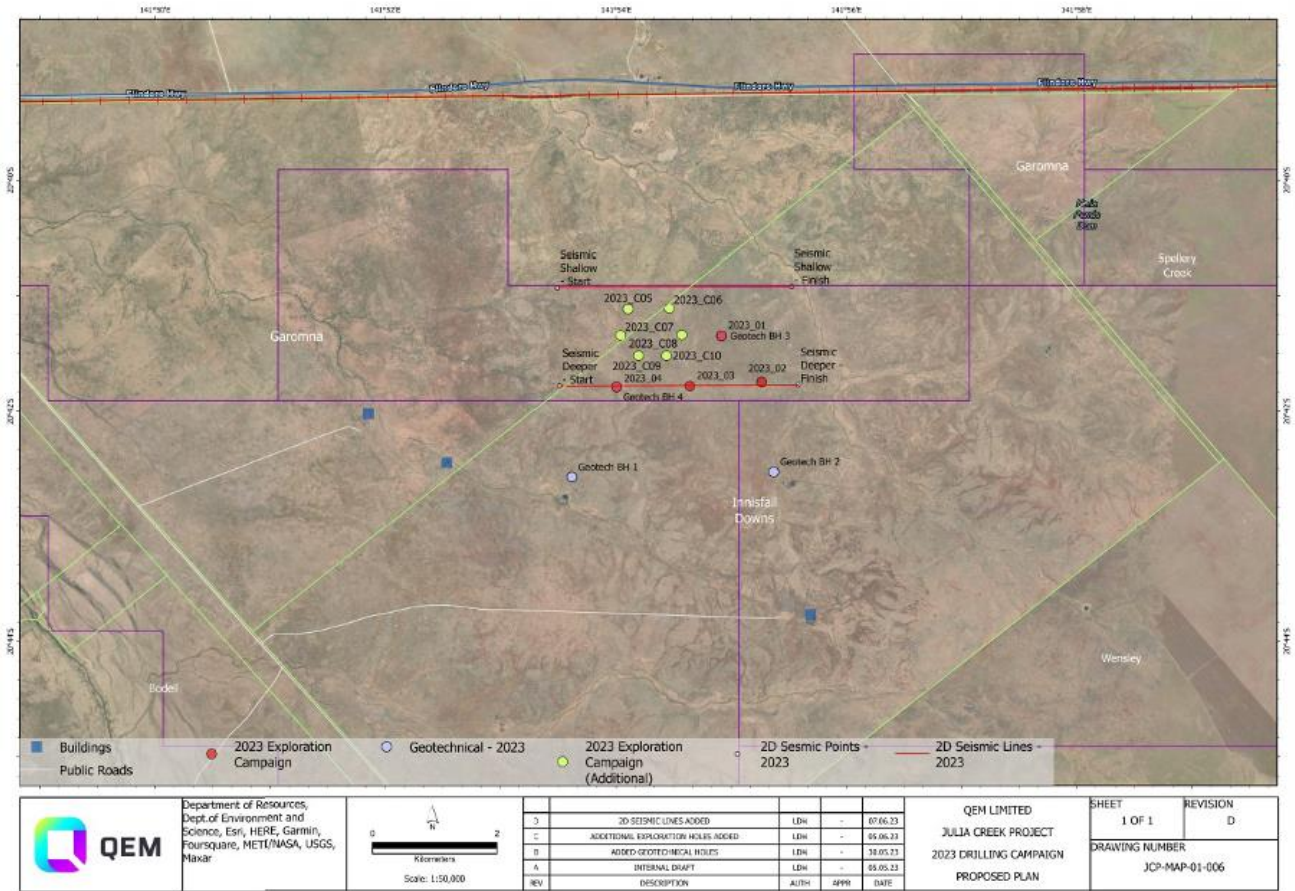


Image: Julia Creek 2023 Drilling Campaign

Water

The North West Vanadium Supply Pipeline Project Study, conducted by Epic Environmental and Water Resources Pty Ltd on behalf of the vanadium proponents surrounding Julia Creek/Richmond area, was completed 13 April 2023 and presented to the Queensland Government in May.

An Opportunity and Constraints Assessment was prepared by Epic Environmental and Water Resources Pty Ltd for QEM Limited, Richmond Vanadium Technology, Currie Rose Vanadium Pty Ltd, Critical Minerals Group, and Vecco Group Pty Ltd (the Parties). The assessment considered the opportunities and constraints of two proposed pipeline options and identified the availability of 20,850 ML/a of secure water. This water could be utilised by Critical Minerals Projects in the North West Minerals Province, such as QEM, as part of a common user infrastructure approach to government, the intent of which is to gain support for this vital piece of infrastructure.

The report includes the consideration of the current water demand and supply schemes, engineering design and pipeline components, cost estimates, forecast supply tariffs, ownership models and commercial considerations, environmental constraints and regulatory approvals required for each option.

The Queensland Government is now considering the proposal and investigating various potential funding options.



Renewable Energy

In May, QEM announced that it was undertaking a process to obtain non-binding indicative bids to develop, own and operate up to 1GW of renewable energy, consisting of a hybrid of wind and solar farm. (see ASX Announcement 31 May 2023). A number of companies expressed interest in developing the project.

Post reporting period, the Company announced, on 3 July 2023, it had shortlisted non-binding indicative offers from 3 global developers: ENEL Green Power, Acciona Energia and Origin Energy (“**ORG**”). (Ref: ASX announcement 3 July 2023).

The JCRP has the potential to provide cheaper power for the JCP and to contribute to decarbonisation and the Queensland and Australian Government renewable energy and emission reduction targets. Outcomes, if successful, have the potential to form crucial components of the Pre-Feasibility Study for the JCP.

Circular Economy- Incitec Pivot Limited

In June, QEM secured a second vanadium-rich industrial waste stream from Incitec’s Mt Isa operations. This agreement with IPL builds on Sun Metals’ commitment in March to provide QEM with spent vanadium-bearing catalyst, used in the production of sulphuric acid. (Ref: ASX announcement 27 June 2023).

QEM intends to extract and repurpose this waste material for potential use in Vanadium Redox Flow Batteries (VRFB).

This collaboration between QEM and IPL represents another Circular Economy opportunity where industrial waste can be repurposed to a higher use. V2O5 is the critical component of the catalyst required to produce sulphuric acid and our aim is to recover and repurpose the V2O5 for use in VRFB batteries, critical in helping to achieve Australia’s carbon reduction targets and aligns with governments approach to a more circular economy.

Queensland Resources Common User Facility- QRCUF

On 20 June 2023, QEM presented Treasury and Department of Resources, a proposal to bring forward stage one of the QRCUF and to install the equipment needed for vanadium extraction from spent catalyst, collected from Sun Metals and IPL. This is equipment that will form part of the QRCUF and can be utilised by other users of the facility also.

The Company has been informed that this item is now on the QRCUF’s Board agenda for a meeting to be held in late July 2023.



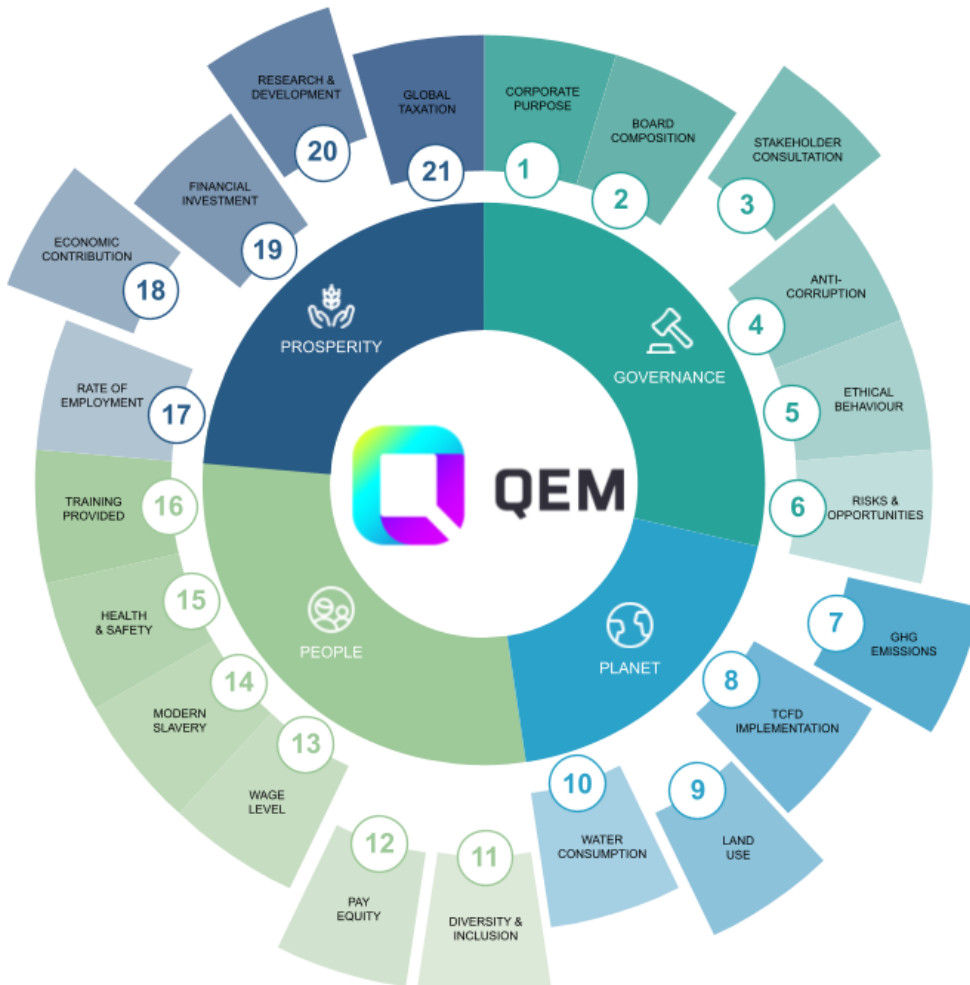
Successful Placement \$2.72m

On 21 June, the Company announced that it had completed a placement of \$2.72m to sophisticated and professional investors at a price of \$0.170 per share. The offer was oversubscribed including support from existing shareholders including non-executive director and major shareholder David Fitch, who will subscribe for ~\$765k to maintain his ~28% shareholding. The placement will support ongoing development of QEM’s 100% owned Julia Creek Project (“JCP”).

ESG and Community Relations

This quarter marks the sixth consecutive that QEM is monitoring and disclosing the Company’s ESG progress and initiatives via Socialsuite’s ESG Go platform.

QEM’s ESG reporting is based on the 21-core metrics set by the World Economic Forum (WEF), as part of WEF’s standardised and globally recognised Stakeholder Capitalism Metrics ESG framework. ESG highlights for this quarter follow, including this graphic summary of the Company’s ESG current focus. These core areas will be continually updated with the input of stakeholder feedback.





PROSPERITY – Economic Contribution & Community Investment

Investment in our community is a high priority for QEM. In 2022, QEM invested in a permanent presence in the town of Julia Creek, just 6km from our flagship vanadium project. QEM leased the property which was formerly the Suncorp Bank, for office space and executive accommodation. In the first quarter of 2023, QEM employed local tradespeople to renovate the premises, ready for the official opening on 17 April 2023 by Mayor of McKinlay Shire Council Philip Curr during the MITEZ Vanadium Forum in Julia Creek.

The opening of QEM's Julia Creek Office was attended by 150 MITEZ (Mount Isa to Townsville Economic Development Zone Inc.) members and industry leaders, local government councillors, state and federal government representatives, including Senator Susan McDonald, as well as the company's vanadium resource optimisation partners from the University of Queensland's Sustainable Minerals Institute.



Image: Opening of QEM Office Premises in Julia Creek, 17 April 2023.

Throughout 2022, QEM contributed to the region with eleven work packages being assigned to local contractors in Julia Creek and the North West Minerals Province, for work including fabrication, plant hire, civil site works, and building renovations. Nine new work packages have already been awarded in the first half of 2023. An additional two packages of work with local contractors have been approved for the next quarter, in preparation for QEM's 2023 drilling campaign and general property maintenance.

QEM also seeks to support the greater communities in which we operate, with a particular focus on youth and women's development, education and sport. QEM proudly sponsors the Julia Creek Saints junior girls and boys and senior rugby league teams, as well as the annual Town vs Country Women's Netball, Juniors and Seniors' Rugby League. QEM was a major sponsor of the 2023 Julia Creek Dirt N Dust Festival in April, and again in June, a major sponsor for the Saxby Roundup weekend - campdraft, rodeo, kids events and entertainment.



The Company will continue to support its peoples' participation in community-based events and review its level of economic contribution, commensurate with its activities.

Related Party Payments

Pursuant to item 6 in the Company's Appendix 5B – Quarterly Cashflow Report for the Quarter ended 30 June 2023, the Company made payments of \$133k related parties for director fees.

Other ASX requirements

ASX Listing Rule 5.3.1: Exploration and Evaluation Expenditure during the Quarter was \$639k.

Full details of activities during the Quarter are set out above.

ASX Listing Rule 5.3.2, there were no mining production and development activities during the Quarter.

Tenement Schedule

Project	Country	Tenement	Status	% Held	Change During Quarter
Julia Creek	Australia	EPM25662	Granted	100%	-
Julia Creek	Australia	EPM25681	Granted	100%	-
Julia Creek	Australia	EPM26429	Granted	100%	-
Julia Creek	Australia	EPM27057	Granted	100%	-

ENDS

This announcement was authorised for release on the ASX by the Board of QEM Limited.

For further information, please contact:

Gavin Loyden
Managing Director
P: +61 7 5646 9553
E: gavin@qldem.com.au

Joanne Bergamin
Communications Director
P: +61 7 5646 9553
E: jbergamin@qldem.com.au

ABOUT QEM

QEM Limited (ASX: QEM) is a publicly listed company which is focused on the exploration and development of its flagship Julia Creek Project, covering 250km² in the Julia Creek area of North Western Queensland.

The Julia Creek vanadium and oil shale project is a unique world class resource with the potential to utilise and deliver innovative and sustainable energy solutions, through the production of energy fuels and vanadium pentoxide. QEM strives to become a leading producer of liquid fuels and in response to a global vanadium deficit, also aims to become a global supplier of high-quality vanadium pentoxide, to both the nascent energy storage sector and the Australian steel industry.



QEM
ASX : QEM

ASX Announcement

27 July 2023

This globally significant JORC (2012) Mineral Resource of 2,850 Mt @ 0.31% V₂O₅ is one of the single largest ASX listed vanadium resources and represents a significant opportunity for development. The resource is comprised of 360Mt @ 0.29% V₂O₅ in the Indicated category and 2,490Mt @ 0.31% V₂O₅ in the Inferred category, with the added benefit of a contingent (SPE-PRMS 2018) in-situ oil resource of 79MMBBLs of Oil equivalent in the 2C category, and 696MMBBLs in the 3C category, contained within the same ore body.

The tenements form part of the vast Toolebuc Formation, which is recognised as one of the largest deposits of vanadium and oil shale in the world and located less than 6km east of the township of Julia Creek. In close proximity to all major infrastructure and services, the project is intersected by the main infrastructure corridor of the Flinders Highway and Great Northern Railway, connecting Mt Isa to Townsville.

*The information in this announcement that relates to the mineral resource and contingent resource estimates for the Company's Julia Creek Project was first reported by the Company in its IPO prospectus dated 20 August 2018 and supplementary prospectus dated 12 September 2018 (together, the "Prospectus") and the subsequent resource upgrade announcements ("Resource Upgrade") dated 14 October 2019 and 7 April 2022. The Company confirms that it is not aware of any new information or data that materially affects the information included in the Prospectus and Resource Upgrade, and in the case of estimates of Mineral Resources and Contingent Resources, that all material assumptions and technical parameters underpinning the estimates in the Prospectus and Resource Upgrade continue to apply and have not materially changed.

Appendix 5B

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

Name of entity

QEM Limited

ABN

13 167 966 770

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	(639)	(2,734)
(b) development		
(c) production		
(d) staff costs		
(e) administration and corporate costs	(443)	(1,293)
1.3 Dividends received (see note 3)		
1.4 Interest received	3	13
1.5 Interest and other costs of finance paid		
1.6 Income taxes paid		
1.7 Government grants and tax incentives	-	440
1.8 Payments for Green Hydrogen Project	-	-
1.9 Net cash from / (used in) operating activities	(1,079)	(3,574)
2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
(a) entities		
(b) tenements		
(c) property, plant and equipment	(32)	(609)
(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 (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	(32)	(609)
3.	Cash flows from financing activities		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	1,955	4,876
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	(110)	(148)
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 – share application funds (not issued)	-	-
3.10	Net cash from / (used in) financing activities	1,845	4,728
4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	1,236	1,425
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(1,079)	(3,574)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(32)	(609)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	1,845	4,728

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	1,970	1,970

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	1,970	1,236
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)	1,970	1,236

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	133
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.

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.		

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

8. Estimated cash available for future operating activities	\$A'000
8.1 Net cash from / (used in) operating activities (item 1.9)	(1,079)
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)	(1,079)
8.4 Cash and cash equivalents at quarter end (item 4.6)	1,970
8.5 Unused finance facilities available at quarter end (item 7.5)	-
8.6 Total available funding (item 8.4 + item 8.5)	1,970
8.7 Estimated quarters of funding available (item 8.6 divided by item 8.3)	1.83
<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: Yes – the Company plans to continue its pre-feasibility and exploration activities at its Julia Creek Project.	
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: The Company has recently raised \$1.845m after costs and will receive an additional \$765k from its largest shareholder after approval at QEM's general meeting. The Company will look to raise capital through its existing LR7.1 and/or LR7.1A capacity, as and when required.	
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: Yes, for the reason noted in 8.8.2 above.	
<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 July 2023**

Authorised by: **By the Board**
(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.