

# ASX ANNOUNCEMENT



28 January 2022

## Quarterly update for the period ending 31 December 2021

### HIGHLIGHTS

- Continued progress in delivering the globally significant Julia Creek Vanadium and Oil Project
- Construction of oil and vanadium bench scale pilot plant on schedule and due to be commissioned in early Q2 CY22
- Six-hole drilling program successfully completed for further resource definition and pilot plant feedstock
- EPIC Environmental appointed to undertake environmental studies and permitting
- Northern Australia Development Program (NADP) grant application submitted
- GHD engaged for renewable power generation studies

QEM Limited (ASX: QEM) (“**QEM**” or “**Company**”) is pleased to provide an update on its activities for the quarter ending 31 December 2021.

QEM Managing Director, Mr Gavin Loyden, said during the quarter the Company streamlined and considerably advanced critical components of the Pre-Feasibility Study for the Julia Creek vanadium and oil shale project in North Western Queensland.

“Our oil and vanadium bench scale pilot plant remains on track to be delivered next quarter, with testing set to commence in April. This will mark another critical step in achieving our core objective of delivering high purity vanadium pentoxide, to meet rising demand for safe grid-scale vanadium battery systems and from the global steel industry.

“I am very pleased with the successful completion of our Julia Creek drilling program during the quarter and we now await the assay results. Also pleasingly, we have a buoyant price environment for both vanadium and oil in our tailwind as we progress the project, as well as an increasingly supportive policy environment.

“This is evidenced by the \$10 million Townsville Vanadium Multi-user Facility funding announcement made by the Queensland State Government during the quarter, which will directly benefit QEM as a Founding Member of the Queensland Vanadium Consortium.

“We also commenced the renewable solar and wind power generation optimisation studies, continued our positive engagement with the CopperString 2.0 project and as well as initiating broader project environmental assessments,” Mr Loyden said.

“We appreciate our shareholders’ support during the quarter and look forward to delivering further progress in 2022.” said Mr Loyden.

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## **Oil & Vanadium Pilot Plant**

The oil and vanadium bench scale pilot plant has been designed and developed to validate the Company's proprietary vanadium and oil extraction process at a larger scale ahead of a commercial demonstration plant.

Fabrication of the pilot plant continued throughout the December quarter at AMAR's facility in India and is on track for completion in late February, with delivery to Australia expected in the first week of March 2022.

AMAR is a specialist manufacturer of high pressure, high temperature batch and continuous reactors and allied systems, whose clients include General Electric, Shell, BASF and Bayer.

The plant was certified and approved by ASME-U on 26 October 2021.

The plant will be housed at the Melbourne headquarters of HRL Technology Group Pty Ltd and following commissioning, the testing program will begin, with expected operational commencement in April 2022 for a period of up to six months.

## **2021 Drilling Program**

On November 23<sup>rd</sup>, QEM Ltd successfully completed its planned 2021 exploration drilling program at the Julia Creek Project in North-Western Queensland. The program was designed with two purposes in mind, the first to provide a greater volume of research material, approximately 1500 kgs for the pilot plant testing and the second to provide further definition to the JORC resource and expand the current Indicated area to the west and north-west.

Wizard Drilling conducted the campaign, overseen by Measured Group geologist Matt Binks.

Six (4C) holes were drilled for a total of 417m of drilling, completed with 99.4 m of 100mm diameter core obtained from the target Toolebuc Formation (approximately 1500kg of total sample). A short summary of each drill hole is below:

Borehole ID	Total Depth (m)	Toolebuc Target Intersection Depth (m)	Sample mass obtained (kg)
QEM018	83.5	56.5 - 71.3	278
QEM019	71.5	47.4 - 60.1	227
QEM020	65.5	39.6 - 52.3	253
QEM021	65.5	41.3 - 54.0	233
QEM022	65.5	42.7 - 55.0	237
QEM023	65.5	38.6 - 51.5	284

All holes were geophysically logged by Weatherford Services and despatched to Mitra PTS in Gladstone QLD.

Assay results will be available in March 2022

Planning is now underway for the 2022 exploration program, which will also include a 17-hole water bore drilling program, as part of the early works program and related environmental studies.



**Figure 1: QEM team onsite for Drilling Program, Nov 2021**

## **Environmental Permitting and Studies**

QEM engaged specialist environmental consultant Epic Environmental Pty Ltd (“Epic Environmental”) during the December quarter for the provision of an environmental permitting pathway and assistance with related approvals (see ASX announcement dated 27 October 2021). Epic Environmental’s assessments will form a crucial component of the Pre-Feasibility Study for the Julia Creek project.

Epic Environmental’s scope of works includes leading the development of an Environmental Impact Statement, undertaking extensive technical studies at Julia Creek, coordinating environmental approval applications and establishing a Progressive Rehabilitation and Closure Plan.

Post-December quarter, baseline environmental studies commenced, including a 12-month air quality, groundwater and surface monitoring program, as well as terrestrial ecology studies. The ecology survey is expected to commence in March 2022.

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## **Townsville Vanadium Multi-user Facility**

On 23 November 2021, the Queensland Treasurer and Minister for Trade announced that at least \$10 million in funding had been approved for the construction of a new demonstration scale vanadium processing facility to be based in Townsville.<sup>1</sup> This is a highly positive development for QEM and demonstrates unprecedented policy support for vanadium projects in North Queensland.

The common-user facility is designed to support smaller mining companies to cost effectively test their processing technologies without having to fund their own standalone facility.

In March 2021, a group of Queensland vanadium explorers and developers including QEM, came together with other interested parties to establish a vanadium consortium with the support of the Queensland Government, Commonwealth Government, the Association of Mining and Exploration Companies, the Queensland Resources Council and Queensland Exploration Council. This group is known as the Queensland Vanadium Consortium (QVC).

QEM is a Founding Member of the QVC and will be a primary beneficiary of this vanadium multi-user facility initiative.

Construction is expected to start in 2022, with the plant scheduled to begin operating in 2023 and will deliver significant synergies with QEM's development strategy.

## **Renewable Power Generation Optimisation Studies**

On 11 November 2021, QEM formally engaged global engineering consultant GHD for renewable power generation optimisation studies at the Julia Creek project, as flagged in the previous quarterly (see ASX announcement dated 29 October 2021).

As part of this package of work, GHD will oversee the installation of on-site stations to monitor long-term wind speed and solar resources to provide enhanced confirmation of the initial encouraging results from studies completed by DNV Australia ("DNV") (see ASX announcements dated 9 July 2021 and 19 July 2021).

DNV's preliminary assessment indicated that wind power and a complementary solar farm could be considered as a conceptually feasible source of power generation at the Julia Creek project.

The work undertaken by GHD will form a crucial component of the Pre-Feasibility Study for the Julia Creek project and we look forward to announcing study updates throughout the year.

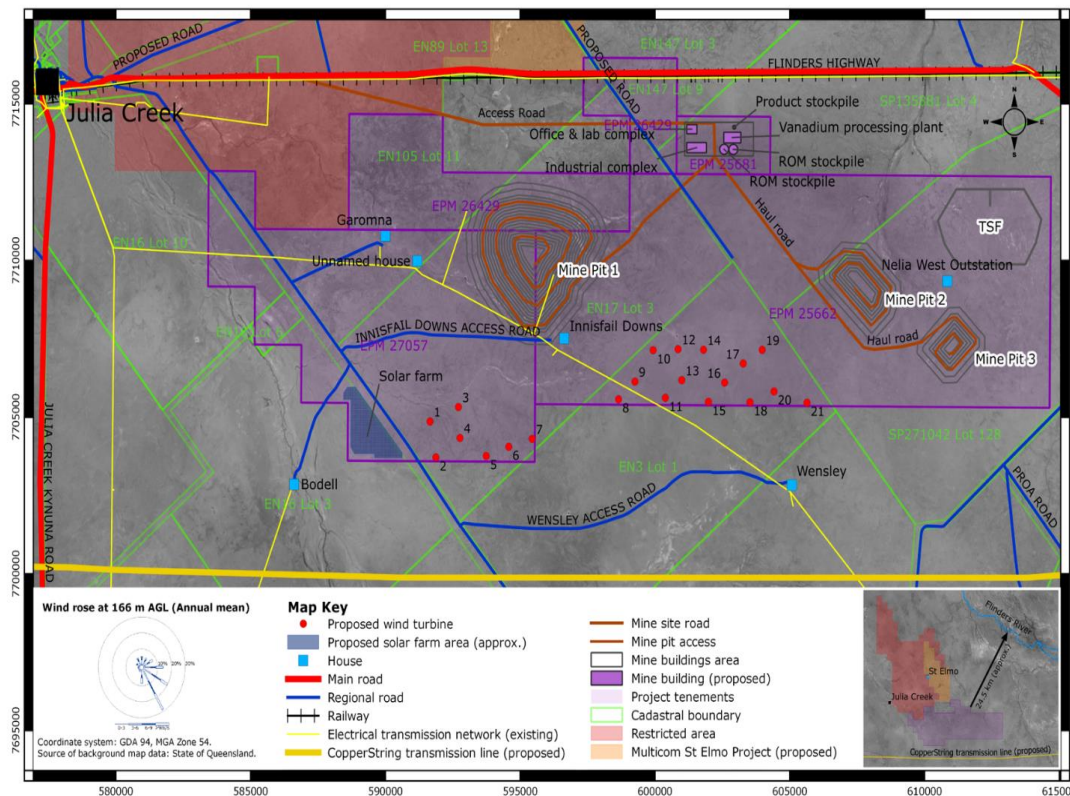
During the quarter QEM issued a connection enquiry with the proposed CopperString 2.0 project (see ASX announcement dated 29 October 2021).

CopperString 2.0 is a proposed \$1.5 billion, 1,000km high voltage transmission project, to service Townsville and the North West Minerals Province (NWMP) and will run within 4km of QEM's Julia Creek vanadium and oil shale project, ideal conditions for efficient access to the electricity grid, as a consumer and/or an exporter of surplus QEM project power. QEM looks forward to leveraging CopperString in Julia Creek's development strategy.

The connection enquiry was received positively by proponent CuString Pty Ltd ("Cu2"), with discussions between QEM and Cu2 proceeding positively. Further significant engagement will occur after GHD's aforementioned studies are concluded.

<sup>1</sup> <https://statements.qld.gov.au/statements/93871>

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**Figure 2: Proposed Julia Creek Project layout**

## **Northern Australia Development Program-Grant Application**

QEM is pleased to advise that it applied for a \$2million matched funding grant under the Northern Australia Development Program (NADP) on 8 November 2021.

Should the application be successful, the NADP grant will assist QEM in advancing the renewable energy developments to project feasibility stage, aid in the progression of environmental approvals and the assessment of wind and solar generation specific to the project tenements.

The funding available through this Program will be applied to:

- 1) Conduct a site investigation to record environmental baselines (flora, fauna, noise, air quality, etc.), necessary to develop an Environmental Impact Statement.
- 2) Conduct ground water bore drilling to register environmental baselines, necessary to develop an Environmental Impact Statement.
- 3) Purchase and install on-site wind and solar monitoring equipment, as required for the engineering feasibility study.
- 4) Implement a technical and commercial feasibility study for the renewable power generation.

The Company has made a robust submission and believes it meets the criteria for awarding of the grant. The outcome should be known in February 2022.

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## **Investor and Market Engagement**

During the quarter, QEM Managing Director, Gavin Loyden, presented at the Noosa Mining Investor Conference and at the AUSTEX Brisbane Resources Industry lunch.

Mr Loyden also participated in an investor webinar and Q&A hosted by Fresh Equities, which was also distributed to QEM investors and posted to the QEM website on December 7<sup>th</sup>.

Without sponsoring any articles over the quarter, QEM has received coverage from Small Caps, The North West Star, Townsville Bulletin, The Market Herald, Industry Queensland, Stockhead, InQueensland, The Motley Fool and Hydrogen Central, as well as features in QRC, QEC and AMEC news bulletins, thereby covering all QEM's commodity bases.

## **ESG and Community Relations**

Managing Director Gavin Loyden MD, Non-Executive Director, John Henderson and Communications Director Joanne Bergamin visited Julia Creek, Mount Isa and Townsville during the reporting period.

A quarterly company update and meeting was held with the McKinlay Shire Council on 16 November in Julia Creek. The QEM team also met with members of the North Queensland State Development Office in Mount Isa to provide a project development update in follow-up to the State Development/QRC industry briefing event which QEM attended on 13 September in Cloncurry (meeting with key regional businesses and potential suppliers in North West Queensland.)

The 'Julia Creek Saints' junior and senior rugby league teams received their new kits, sponsored by QEM as well as new signage on the Kev Bannal Oval at Julia Creek.

QEM sponsored the December 8 launch of the Gold Coast Chapter of Women In Mining And Resources Queensland (WIMARQ), founded and led by QEM Communications Director Joanne Bergamin. WIMARQ is a non-profit organisation dedicated to connecting, nurturing, and supporting women to achieve their goals within the Queensland Mining and Resources sector and to influence improvements in gender diversity and inclusion outcomes through our thought leadership reference group.

## **COVID-19 Impacts**

QEM is pleased to report that it continues to experience no material COVID-19 impacts on its operations. The Company is maintaining adherence to Government directives to ensure it does its part to mitigate the risk of an outbreak.

## **Related Party Payments**

ASX Listing Rule 5.3.5: Payments to related parties of the Company and their associates during the Quarter totalled \$128k. The Company advises that this relates to non-executive director's fees, executive directors' salaries and a technical consulting fee to Energy Source LLC (an entity associated with Mr Daniel Harris).

## **Other ASX requirements**

ASX Listing Rule 5.3.1: Exploration and Evaluation Expenditure during the Quarter was \$460k and expenditure incurred in relation to the Green Hydrogen Project was \$12k.

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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**

In line with obligations under ASX Listing Rule 5.3.3, QEM Limited provides the following information with respect to its Mining Tenement holdings as at 31 December 2021.

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%	-

- END -

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

## **For further information, please contact:**

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## **ABOUT QEM**

QEM Limited (ASX: QEM) is a publicly listed company which is focussed on the exploration and development of its flagship Julia Creek Project, covering 250km<sup>2</sup> in the Julia Creek area of North Western Queensland.

The Julia Creek vanadium / oil shale project is a unique world class resource with the potential to deliver innovative 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.

This globally significant JORC (2012) Mineral Resource of 2,760 Mt @ 0.30% V<sub>2</sub>O<sub>5</sub> is one of the single largest ASX listed vanadium resources and represents a significant opportunity for development.

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 16km 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.

## 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")

31 December 2021

<b>Consolidated statement of cash flows</b>	<b>Current quarter \$A'000</b>	<b>Year to date (6 months) \$A'000</b>
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers		
1.2 Payments for		
(a) exploration & evaluation	(460)	(763)
(b) development		
(c) production		
(d) staff costs		
(e) administration and corporate costs	(201)	(495)
1.3 Dividends received (see note 3)		
1.4 Interest received	-	1
1.5 Interest and other costs of finance paid		
1.6 Income taxes paid		
1.7 Government grants and tax incentives		
1.8 Payments for Green Hydrogen Project	(12)	(42)
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(673)</b>	<b>(1,299)</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	-	(126)
(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 (6 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)		
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	-	(126)
<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	2,013
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	(4)	(136)
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>(4)</b>	<b>1,877</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	2,456	1,327
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(673)	(1,299)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	-	(126)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	(4)	1,877

## 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 (6 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>1,779</b>	<b>1,779</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	1,779	2,456
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>1,779</b>	<b>2,456</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	128
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.*

<b>7.</b>	<b>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.		

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

<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)	(673)
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)	(673)
8.4 Cash and cash equivalents at quarter end (item 4.6)	1,779
8.5 Unused finance facilities available at quarter end (item 7.5)	-
8.6 Total available funding (item 8.4 + item 8.5)	1,779
8.7 <b>Estimated quarters of funding available (item 8.6 divided by item 8.3)</b>	2.64
<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: **28 January 2022**

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

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

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**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.