ASX Announcement

4 March 2024

QEM Upgrades Julia Creek Resource Base

Highlights:

- → **QEM's flagship Julia Creek Project's Indicated vanadium JORC Resource increases 28% to 461 million tonnes (Mt)**
- → **Total vanadium JORC Resource rises to 2,870Mt at an average V205 ore content of 0.31%**
- → **2C oil shale estimate increases 32% to 94 MMBBls**
- → **3C oil shale estimate of 654 MMBBls**
- → **Multi-commodity potential with Copper (Cu), Molybdenum (Mo), Nickel (Ni), Zinc (Zn), and Aluminium (Al) identified as potential by-products that could significantly contribute to the overall value of the project.**

Critical minerals explorer and developer QEM Limited (ASX: QEM) **("QEM" or "Company")** is pleased to announce an increase in the size and grade of the Julia Creek vanadium deposit, which was already one of the largest single vanadium deposits in the world, as well as a significant upgrade in the confidence of the oil Resource at the Company's flagship Julia Creek Project.

An independent geology and resource estimate report undertaken by Measured Group Pty Ltd detailed a current estimated Mineral Resource at the Julia Creek project of 2,870 million tonnes (Mt) vanadium bearing ore at an average V205 content of 0.31%. The previous Mineral Resource estimate, which was released to the ASX on 7 April 2022, consisted of 2,850Mt vanadium bearing ore at an average V205 content of 0.31%.

The updated 2024 JORC Mineral Resource Estimate encompasses an 28% increase in Indicated vanadium Resource of 461Mt and 2,406Mt in the Inferred category.

Additionally, the updated PRMS (2018) resulted in a 32% increase of the 2C oil shale estimate to 94MMBBls. Utilising a 90% recovery factor, a 3C oil shale Resource estimate of 654 million barrels (MMbbls) was reached.

Furthermore, it is possible that additional by-products (other than V2O5 and crude oil) such as base metals (Copper (Cu), Molybdenum (Mo), Nickel (Ni), Zinc (Zn), Aluminum (Al)) and cement products could be produced as part of the Vanadium processing, which may have a positive impact on revenue assumptions.

QEM
ASX : QEM

Directors:

Chair
Tim Wall

Managing Director
Gavin Loyden

Non-Executive Director
Daniel Harris

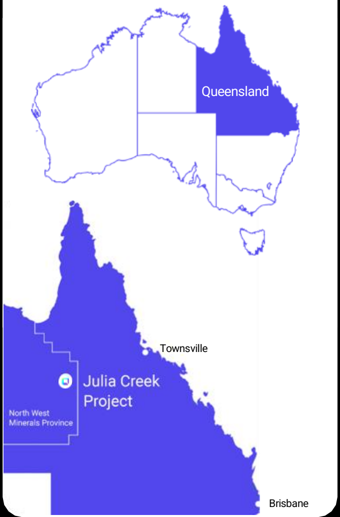
Non-Executive Director
Tony Pearson

Non-Executive Director
David Fitch

Julia Creek Project:

Vanadium

Oil



QEM Limited

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

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

High Purity Alumina (HPA) in particular has been identified as an opportunity for further investigation.

In June 2023, the Federal Government issued its Critical Minerals Strategy 2023-2030 and in February 2024, the Strategic and Critical Minerals List was updated. Aluminum (Al), (Copper (Cu), and Zinc (Zn) are part of the Strategic Materials List while Vanadium (V), Molybdenum (Mo) and Nickel (Ni) are part of the Critical Minerals List.

Vanadium-the versatile metal

Vanadium plays an important role in the global economy and has many uses in today's industry, from its primary use in the steel industry, where it adds strength, durability, flexibility and heat resistance at high speeds. Other applications include automotive, tools and aerospace along with chemical applications such catalysts and "smart glass".

Large Scale Renewables Energy Storage

The most recent and exciting application is its use in vanadium redox flow batteries (VFB). These batteries are poised to play a pivotal role in Long Duration Energy Storage (LDES) required for the commercialization of renewable energy.

VFB's are durable and have a long lifespan, low operating costs, safe operation, and a low environmental impact in manufacturing and can be completely recycled. An Australian invention, this flexible and scalable technology is being used worldwide to fill the growing demand in LDES applications, helping to meet global energy transition targets and it is here in particular that QEM sees the opportunity.

QEM Managing Director Gavin Loyden said, "The Resource upgrade at Julia Creek clearly demonstrated the size and consistency of the QEM tenements with 28% and 32% increases in Indicated Vanadium and 2C oil resources respectively, resulting from the targeted drilling campaign in the Northern area of the deposit.

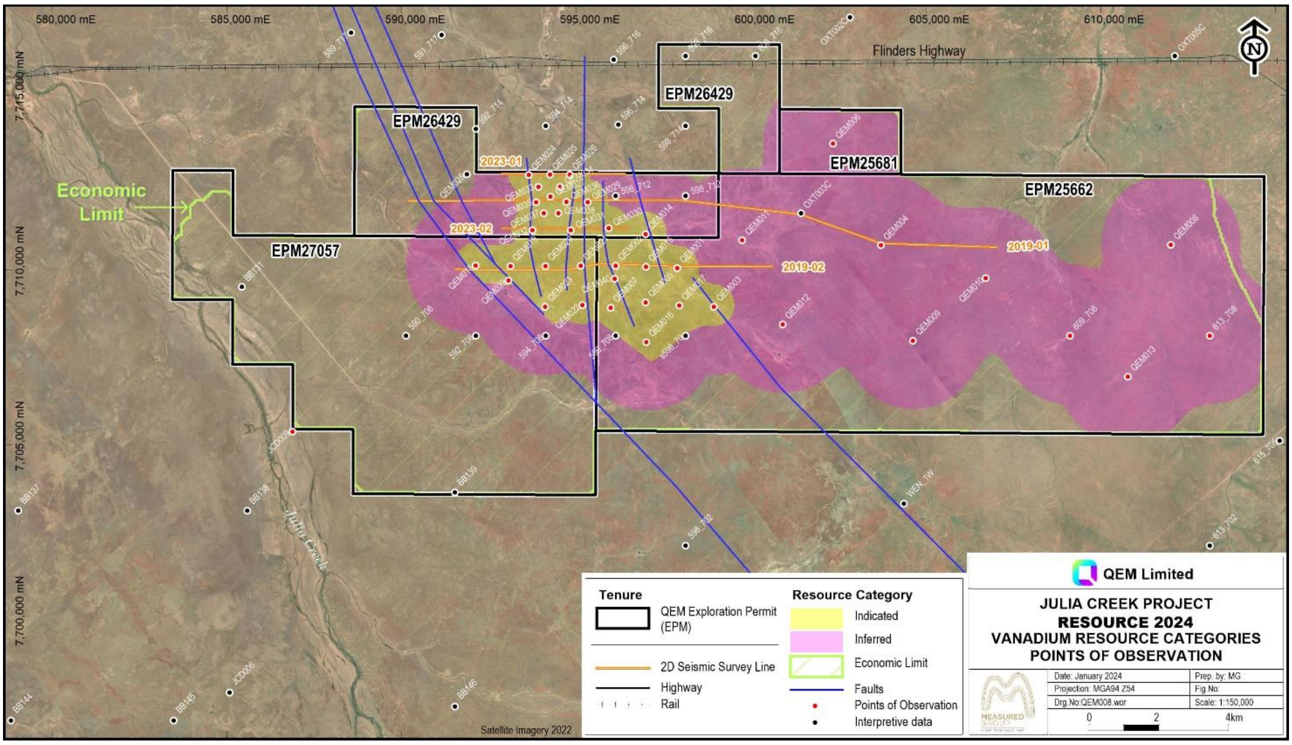
"The Resource upgrade comes at an optimal time, enabling QEM to integrate the new findings into our new Scoping Study, which is on track for release in 2Q 2024, signifying a major step forward for the Company's production ambitions.

"We've substantially bolstered the confidence level in both our vanadium and oil shale Resource bases, propelling us towards realising our ambition of developing Australia's critical minerals resources and delivering innovative energy solutions which will help Australia with meeting its own energy transition targets.

"We will build on this highly encouraging Resource upgrade with QEM's 2024/5 exploration campaign, with the details for the program currently being finalised." Mr Loyden said.

Figure 1: Julia Creek Project Location

Figure 2: Resource Categories, points of observation and interpretive data for the Julia Creek Vanadium Project



Note: *The Indicated (yellow area) is also equivalent to the area used in the volumetric calculation of 2C petroleum resource; likewise, the pink Inferred + yellow Indicated areas are equivalent to the area used in the volumetric calculation of the 3C petroleum resource. The estimate uses a minimum cut-off of 0.2% V2O5 for the oil shale units and a minimum cut-off of 0.15% V2O5 for the Coquina units.*

Table A: Julia Creek Resource Estimate as at 9th February 2024

Total					
Resource Class	**Strat.Unit**	**Mass (Mt)**	**Average Thickness (m)**	**Insitu Density (gm/cc)**	**V2O5 (wt%)**
Indicated	CQLA	167	3.17	2.40	0.24
	CQLB	128	2.58	2.28	0.30
	OSU	81	1.92	1.95	0.31
	OSL	84	2.02	1.93	0.32
		461		**2.20**	**0.28**
Inferred	CQLA	697	2.46	2.42	0.23
	CQLB	826	3.13	2.23	0.39
	OSU	432	1.84	1.97	0.31
	OSL	451	1.95	1.95	0.29
		2,406		**2.18**	**0.31**
Total		**2,870**		**2.19**	**0.31**

Note:
1. The estimate uses a minimum cut-off of 0.2% V_2O_5 *for the oil shale units and a minimum cut-off of 0.15%* V_2O_5 *for the Coquina units.*
2. The total resource tonnage reported is rounded to reflect the relative uncertainty in the estimate categories and component horizons may not sum correctly.
3. Copper (Cu), Molybdenum (Mo), Nickel (Ni), Zinc (Zn), and Aluminium (Al) are not listed due to categorisation as secondary potential by-products

Potential By-Products

Copper (Cu), Molybdenum (Mo), Nickel (Ni), Zinc (Zn), and Aluminium (Al) have been identified as potential by-products that could significantly contribute to the overall value of the project. The following table outlines their respective average grades across the deposit.

Table B: Julia Creek Potential By-Products

Strat.Unit	Potential By Products				
	Cu (ppm)	Mo (ppm)	Ni (ppm)	Zn (ppm)	Al (ppm)
CQLA	293	137	120	801	2,943
CQLB	448	226	199	1,165	5,555
OSU	380	152	188	1,090	57,843
OSL	346	133	170	1,040	58,502

In addition, within the same gross rock volume as calculated for the inferred + indicated Vanadium mineral deposit, a PRSM (2018) oil shale resource has been estimated at 726 million barrels in-situ (Petroleum Initially In Place). This is equivalent to a 3C estimate of 654 MMbbls using a 90% recovery factor as shown in Table C. A high graded 2C volume, based on the likelihood of Vanadium (indicated resource in Table A) development, has been calculated at 94 MMbbls using a 90% recovery factor.

A limited Variography study has shown that both the thickness of the stratigraphic units hosting the V2O5 mineralisation and oil grade for those stratigraphic units display very long ranges (in excess of 6,000 m for V2O5 and in excess of 2400m for thickness). The competent persons consider that the Indicated and Inferred Mineral Resource classification, and 2C and 3C Petroleum classification is sufficient to address the current level of confidence in the continuity of thickness, tonnage, Vanadium and Oil Grade across the deposit on a global basis.

Table C: Summary of Oil Shale Resources as at 9 February 2024

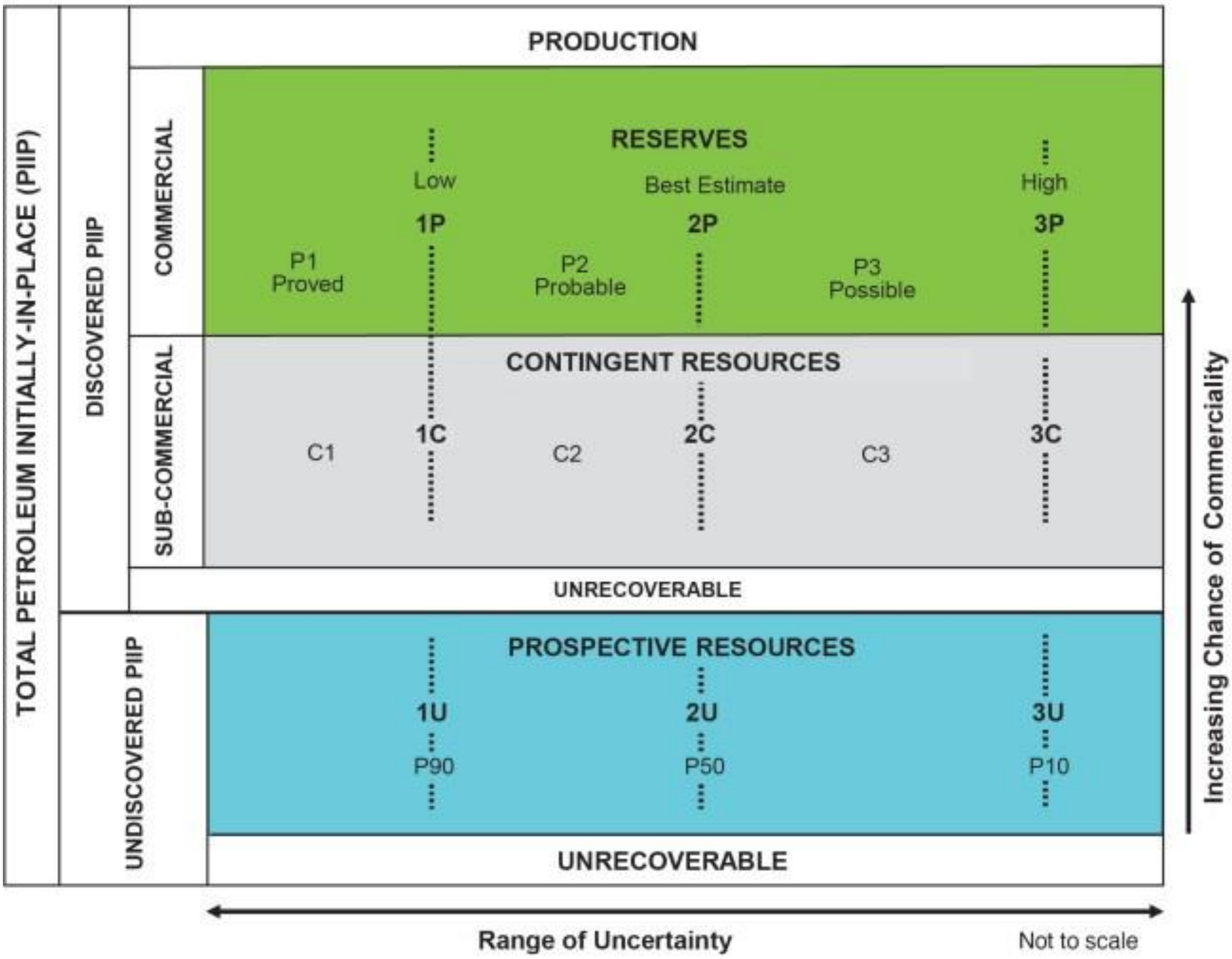
Resource Class	Strat Unit	Mass (Mt)	Average Thickness (m)	Total Moisture wt%	Oil Yield (L/tonne)	Oil Yield LTOM	MMBbls (in-situ PIIP)	MMBbls Recoverable
3C Contingent	CQLB	903	2.5	6.8	53.1	55.0	254	228
	OSU	621	1.8	6.8	75.9	79.0	248	223
	OSL	609	1.9	6.8	70.7	76.7	224	202
Total / Ave		**2134**		6.8	66.6	70.2	**726**	**654**
2C Contingent	CQLB	107	2.1	2.8	50.9	52.3	33	29
	OSU	76	1.9	13.3	78.7	81.4	36	32
	OSL	81	2.0	11.8	74.8	76.7	36	33
Total / Ave		**264**		9.3	68.1	70.1	**105**	**94**

Note:

1. *The total resource tonnage reported is rounded to reflect the relative uncertainty in the estimate and component horizons may not sum correctly.*
2. *The 3C petroleum resource reported includes the 2C volumes, ie. They are cumulative not incremental as per the PRMS 2018 guidelines.*
3. *An economic cut-off of 40 L/tonne was applied prior to the calculation; it must be noted that the CQU and the CQLA did not meet the criteria of >40 L/tonne for inclusion in the volumetric calculation.*
4. *The 2C and 3C volumes reported here are unrisked.*

Resources Classification Framework PRMS (2018)

Figure 3: Under the PRMS (2018), petroleum resources and reserves are classified as shown in the following figure.



In accordance with this system, the potential oil resource within QEM's project area would be currently classified as a Contingent Resource, in accordance with the following definition.

"CONTINGENT RESOURCES are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, but the applied project(s) are not yet considered mature enough for commercial development due to one or more contingencies. Contingent Resources may include, for example,

projects for which there are currently no viable markets, or where commercial recovery is dependent on technology under development, or where evaluation of the accumulation is insufficient to clearly assess commerciality. Contingent Resources are further categorised in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterised by their economic status."

Thus, in the case of oil shales, the Contingent Resource would be subdivided into 1C, 2C and 3C, according to whether the relevant oil shale resource was classified under the JORC Code as Measured, Indicated or Inferred.

Once the contingent element under the definition is resolved (in this case, by the proving of the technology), the 1C, 2C and 3C Contingent Resources automatically convert to 1P, 2P and 3P Reserves respectively.

Comparison to previous Resource Estimate

Figure 4A: Waterfall chart showing changes to resource estimate since March 2022 estimate.

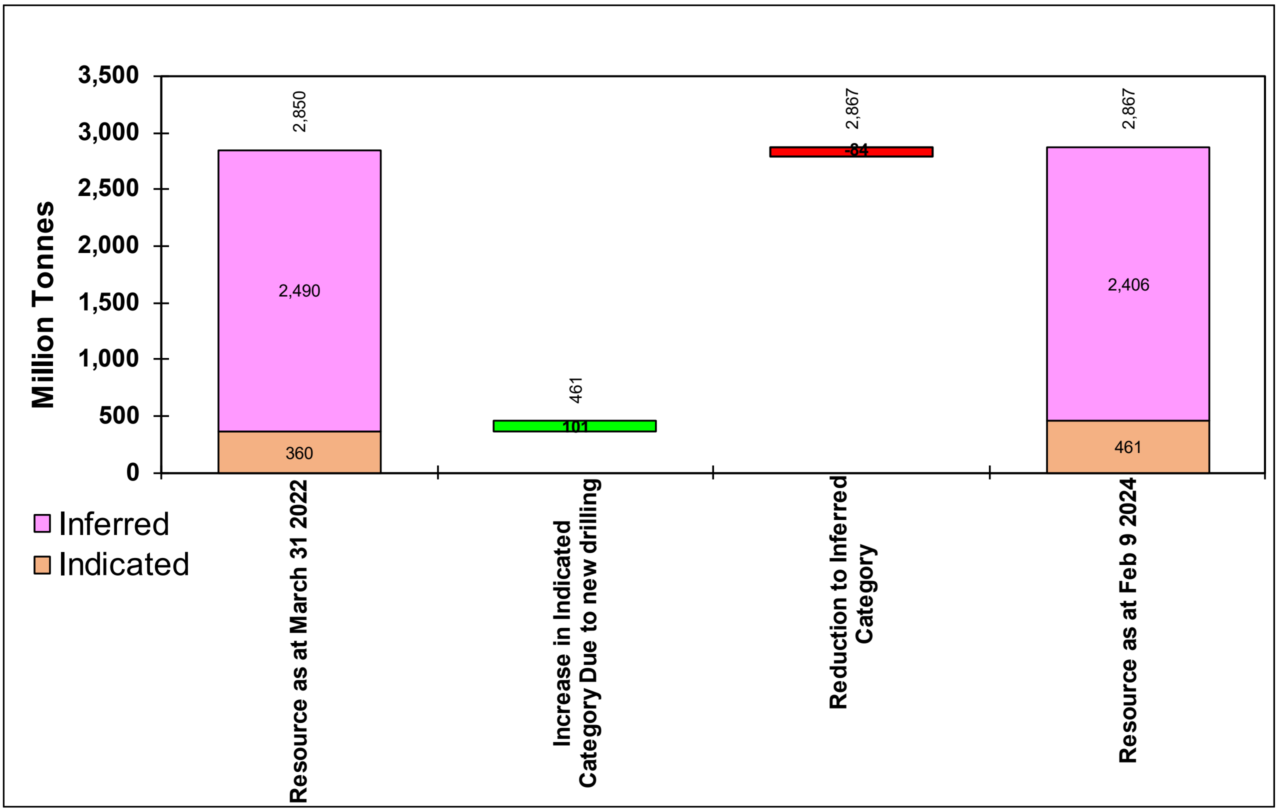
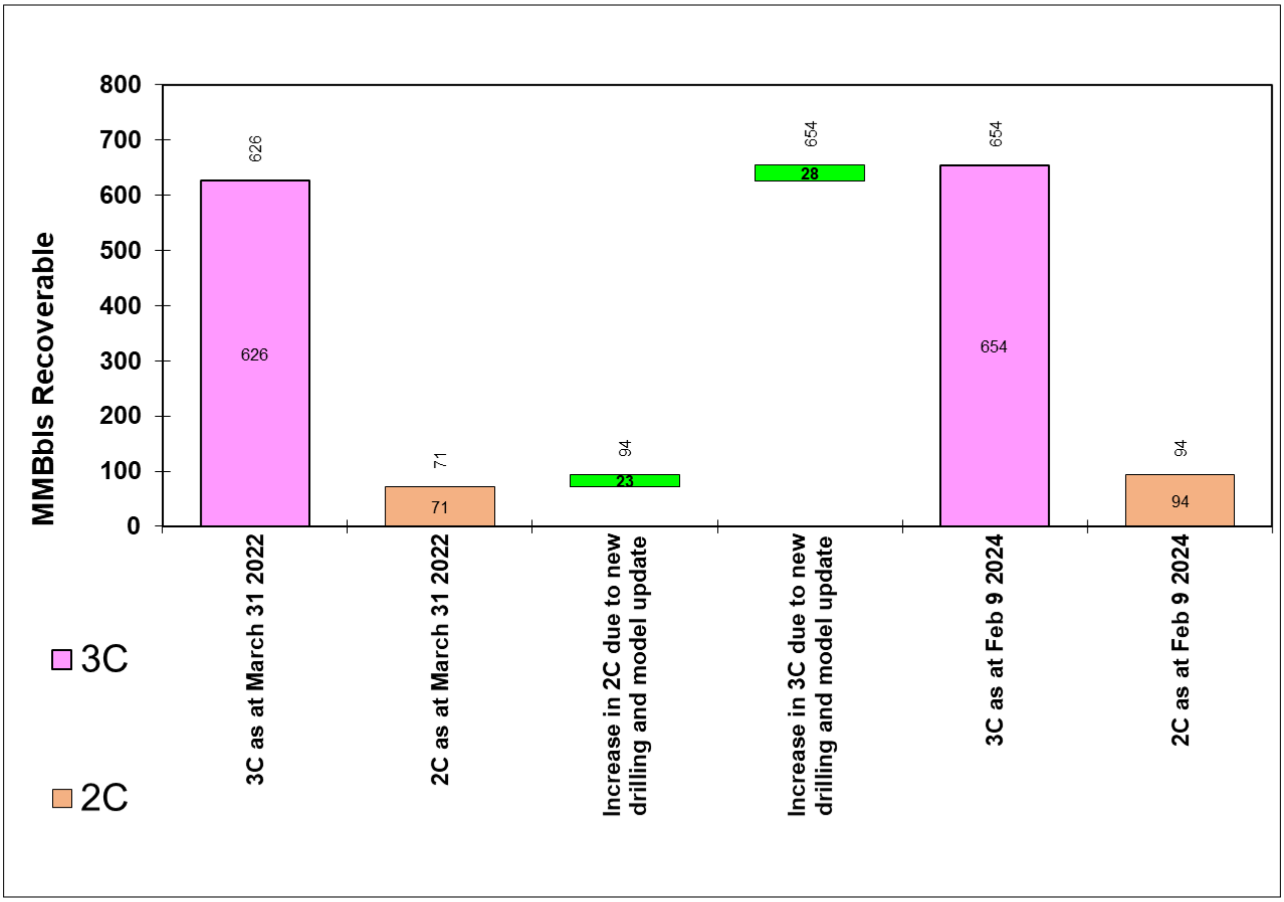


Figure 4B: Change in Petroleum Resource Estimate since March 2022



QEM 2D Seismic (2019 & 2023)

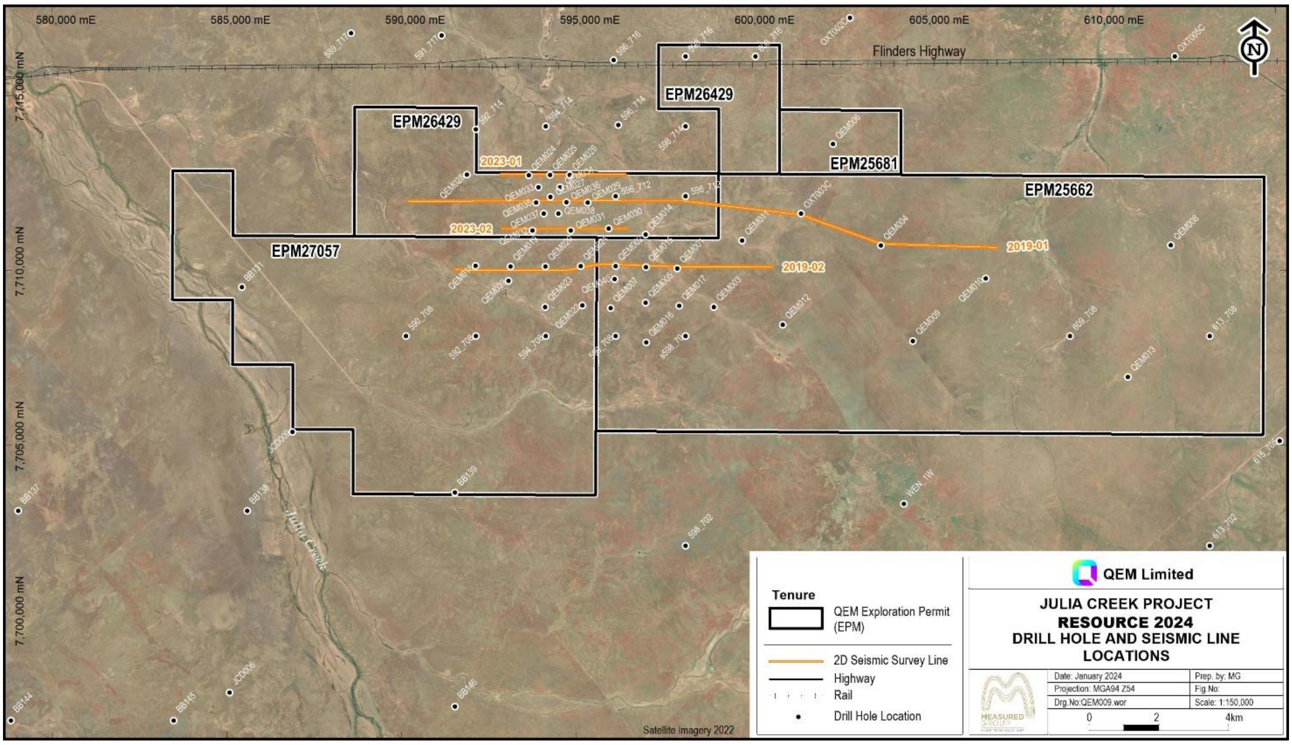
In 2019, QEM commissioned Velseis to conduct a 26 km 2D seismic survey using mini-sosie. The seismic survey consisted of two east-west lines, line 01 being 17 km and south of that line 02 being 9 km long.

In 2023, QEM again commissioned Velseis to conduct a 7.3 km 2D seismic survey using mini-SOSIE. The seismic survey consisted of two east-west lines. Line 01 is located north of the existing 2019 survey lines at a length of ~3.6 km (Figure 4.4) and south of that is line 02, located between the 2019 survey lines, approximately 3.7 km long (Figure 4.5).

The purpose of these programmes was to determine the geological structure(s) and the continuity of the resource across the project area. The 2023 survey built upon the findings from the 2019 survey, with results from both surveys being used for the 2023 interpretation, the results showed that seams are continuous across the surveyed area and that there are some minor N-S striking faults, with the largest fault displacement calculated at 12.5 m and the bulk of the interpreted structures appearing to be below the 3 m resolution limit. These interpreted structures should not impact open-cut mining potential.

Figure 4: below shows the location of the Seismic lines with drillhole locations within the Lease boundaries.

Figure 4: 2D Seismic Line Locations



Forward Work Program

The following forward work program is recommended by Measured Group.

1. Metallurgical testing is required to investigate costs and recovery factors associated with the recovery of oil, Vanadium and any other potential base metal biproducts (such as Al, Cu, Mo, Ni and Zn). This proposed test work should include a detailed characterisation program for environmental, mineralogical and geochemical components of the resource (and waste) horizons. This work has already commenced.

2. Recent drilling programs have concentrated on the shallower western areas of the resource, which will likely represent the early mining areas of the project. However, a large area of the eastern side of the resource is also showing relatively shallow depths, and favourable grades. The currently available drillhole data also shows a unit between the CQLB and OSU developing, that requires further investigation. It is recommended that future drilling programs allow for some drilling in the eastern part of the deposit.

3. More detailed work on the overall economics of the project is required to advance the project to scoping study, pre-feasibility and feasibility studies. As the strategy for oil and mineral processing that will ultimately be used for the project becomes more clear, reassessment of the resource in relation to geo-metallurgical factors may be required.

In Addition

QEM continues to advance work with the University of Queensland's SMI unit to develop a highly targeted beneficiation process, particular to the QEM's resource at Julia Creek. The program builds on the recent results obtained through the mineral characterisation work carried out by UQ's WH Bryan Mining Geology Research Centre. The current flowsheet is continually being refined and improved and this work is providing important insights into the Julia Creek Resource.

Competent Person and Qualified Evaluator Statements

The information in this report that relates to Mineral Resources for the Julia Creek Project is based on and fairly represents information complied and reviewed by Mr. Lyon Barrett, who is a Member of the Australasian Institute of Mining and Metallurgy and is a Principal Geologist employed by Measured Group Pty Ltd, independent consultants to QEM. Lyon Barrett has more than 25 years' experience in the estimation of Mineral Resources both in Australia and overseas. This expertise has been acquired principally through exploration and evaluation assignments at operating mines and exploration areas. This experience is more than adequate to qualify him as a Competent Person for the purpose of Mineral Resource Reporting as defined in the 2012 edition of the JORC Code. Mr Barrett consents to inclusion of the resource estimate and supporting information in the form and context in which they are presented in the announcement.

The petroleum resource estimates for Exploration Permits for Minerals 25622, 25681, 26429 and 27057 Julia Creek Oil Shale Deposit provided in this report and statement were determined by Dr Scott Mildren, Adelaide, Australia in accordance with Petroleum Resource Management System guidelines. He has given his consent to the use of the resource figures in the form and context in which they appear in this statement. Dr Mildren:

- has a BSc (Hons) and PhD (Geology) and is a Member of the Society of Petroleum Engineers and the Petroleum Exploration Society of Australia.
- has over 26 years' experience in the exploration, development, assessment and evaluation of oil and gas reserves and resources and is a qualified evaluator as defined under the ASX Listing Rule 19.12.
- is an exploration consultant, Adelaide, Australia and is independent of Queensland Energy and Minerals Pty Ltd.

The estimate of the Petroleum Resource for the Julia Creek Project presented in this report has been carried out in accordance with the SPE Guidelines for Application of the Petroleum Resources Management System 2018.

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
Director, Communications & Sustainability
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 West Queensland.

The Julia Creek vanadium and oil shale project is a unique world class resource with the potential to utilise sustainable energy solutions in 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 global steel industry.

This globally significant JORC (2012) Mineral Resource of 2,870 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 461Mt @ 0.28% V2O5 in the Indicated category and 2,406Mt @ 0.31% V2O5 in the Inferred category, with the added benefit of a contingent (SPE-PRMS 2018) in-situ oil resource of 94MMBBls of Oil equivalent in the 2C category, and 654MMBBLs 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. Near 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 A: SPE-PRMS PETROLEUM RESOURCE ESTIMATE - JULIA CREEK

This report is a SPE-PRMS report for the Julia Creek Oil Shale deposit issued in March 2024. The criteria and assumptions which underpin the estimate are set out in the body of this report.

The Petroleum Resource estimate is based on the discovered Petroleum Initially in Place (PIIP); estimated using a stratigraphic grid model. The methodology used is a deterministic method. The estimate is based on the following constraints and data:

- Interpretation of intersected stratigraphy and assay data in 47 pre-collared cored drill holes drilled to a maximum depth of 151 metres below surface for an aggregate of 2,951 metres.
- The maximum depth for the estimate is 105 metres.
- Oil grade has been determined by modified Fischer Assay (ASTM D3940-90) on 171 core samples representing approximately 380m metres of cored material.
- A cut-off grade of <40 L/tonne has been applied to the oil yield, based on analogue data
- The resource is contained within an elongate surface area of 144 square kilometres within Exploration Permits for Minerals 25662, 25681, 26429 and 27057.
- A recovery factor of 0.90 has been applied to the in-situ estimate based on published recovery data from a number of conventional retort technologies both operating and under development.

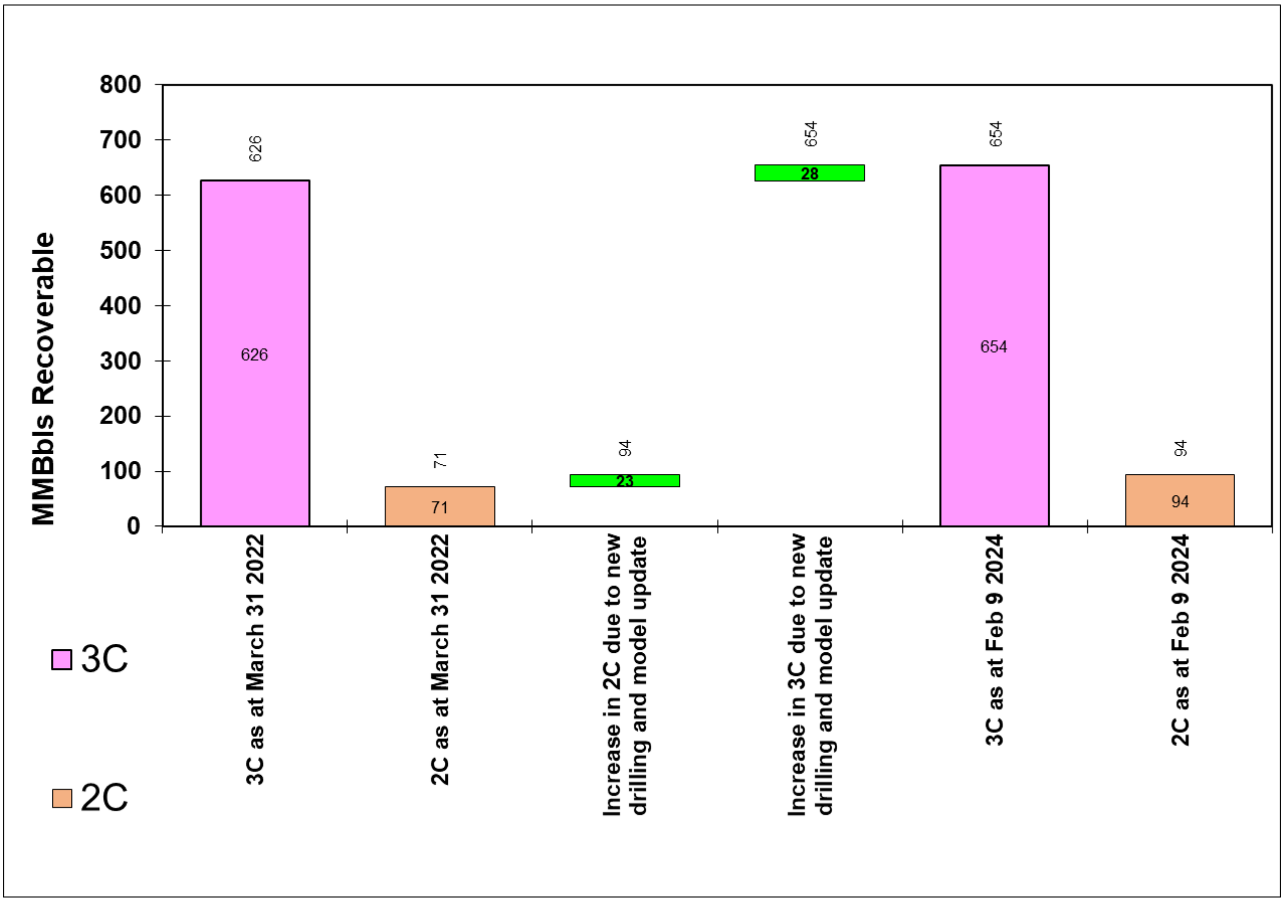
The total estimate as at 9 February 2024 are 2C and 3C resources. The 2C volumes represent a high graded part of the 3C volume as a result of new exploration drilling (16 drill-holes) and sampling undertaken in 2021, 2022 and 2023. The exploration drilling spacing and composited stratigraphic intervals for sampling is not sufficient to define 1C resources (Table A.1).

Table A.1 SPE-PRMS Petroleum Resource Estimate as at 9 February 2024 (Technically recoverable: RF=90%)

Total								
Resource Class	Strat Unit	Mass (Mt)	Average Thickness (m)	Total Moisture wt%	Oil Yield (L/tonne)	Oil Yield LTOM	MMBbls (in-situ PIIP)	MMBbls Recoverable
3C Contingent	CQLB	903	2.5	6.8	53.1	55.0	254	228
	OSU	621	1.8	6.8	75.9	79.0	248	223
	OSL	609	1.9	6.8	70.7	76.7	224	202
Total / Ave		**2134**		6.8	66.6	70.2	**726**	**654**
2C Contingent	CQLB	107	2.1	2.8	50.9	52.3	33	29
	OSU	76	1.9	13.3	78.7	81.4	36	32
	OSL	81	2.0	11.8	74.8	76.7	36	33

- Contingent Resources are those quantities of petroleum estimated, as of this report date, to be potentially recoverable from known accumulations using established technology or technology under development. Commercial recovery of oil from Julia Creek shale has not been established and as such the contingent resources cannot be classified as petroleum reserves. At Julia Creek, resource development is considered unclarified or not viable based on the current immature state of knowledge of commercial recovery due to one or more of the following contingencies.
- The 2C volume is included as part of the 3C volume. That is, it is not incremental but represents a volume within the 3C area of greater certainty as a result of infill drilling information from the 2021, 2022 and 2023 exploration programs.
- Development requires the application and grant of a mining lease and environmental approvals from the Queensland Government based on a commercial mine and processing proposal, i.e. legal, environmental, social and governmental factors for development have not been either established or approved.
- A commercial mine and processing development has not at this time been assessed against any current and forecast economic conditions to support commercial viability. An in-situ cut-off grade or yield has been applied to this analysis, but maybe reduced or removed if future commercial recovery can be established.
- Commercial recovery is dependent on the suitability of Julia Creek oil shale to be processed in current retorting technology or technology under development.

Figure A.2 Change in Petroleum Resource Estimate since 31 March 2022



APPENDIX B: JORC TABLE 1

Section 1 - Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	Explanation	Commentary

Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*
	• *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*
		- Sampling and testing conducted by contract geologists during the QEM 2015 drilling campaign is described below:
		- Testing took place on the Toolebuc Formation which is the target formation. Cored intersections of the target formation were sampled in 0.5 m sections except where samples were terminated against sharp contacts between sedimentary units. All samples were double bagged on site. Samples were assigned individual sample numbers and accompanied by a sample advice sheet.
		- Half cores were delivered to ALS Coal Division laboratory in Townsville Queensland for weighing, crushing, splitting and testing. Sampling was extensive, with standard tests for all samples including:
		    - Total Moisture;
		    - Inherent Moisture;
		    - Ash Content;
		    - Volatile Matter;
		    - ICP-AES analysis. ICP-AES analysis included a suite of 33 elements, the important ones from the projects prospective being Ca, Cu, Mo and V.
		- Composited samples selected following the above assays:
		    - Modified Fischer Assay
		- Industry standard coring (4C) and sampling methods have been used.
		- Sample representivity was ensured by careful observation of the core by a trained geologist during sampling in order to ensure that samples do not cross unit boundaries and by recording and tracking core recoveries.
		- During the 2018 and 2019 drilling campaign, sampling and testing was carried out by QEM staff geologists. A similar procedure was followed for sampling and analysis, except that the stage 1 analysis step was skipped, and the samples were combined into the relevant units (CQU, CQLA, CQLB, OSU and OSL) prior to Proximate Analysis and ICP.
		- Sampling and testing conducted by contract geologists during the 2021, 2022 and 2023 drilling campaigns are described below:

Criteria	Explanation	Commentary

		- Testing took place on the Toolebuc Formation which is the target formation. Cored intersections of the target formation were sampled in 0.5 m sections except where samples were terminated against sharp contacts between sedimentary units or they were truncated by the start or end of a core run. All samples were placed in 100 mm PVC splits to ensure structural integrity of the core was maintained and sealed inside layflat tubing. Samples were assigned individual sample numbers and accompanied by a sample advice sheet.
		- Full cores were delivered Mitra PTS laboratory in Gladstone, Queensland for slabbing, weighing, crushing, splitting and testing. All samples were slabbed on delivery at the lab with one quarter of each sample being used for the below workflow. Sampling was extensive, with standard tests (Stage 1) for all samples including:
		  - Total Moisture;
		  - Inherent Moisture;
		  - Ash Content;
		  - Volatile Matter;
		  - ICP-AES analysis including a suite of 33 elements, the important ones from the projects prospective being Ca, Cu, Mo and V.
		- Composited samples selected following the delivery of the above assays:
		  - Modified Fischer Assay
		- Industry standard coring (4C) and sampling methods have been used.
		- Sample representivity was ensured by careful observation of the core by a trained geologist during sampling in order to ensure that samples do not cross unit boundaries and by recording and tracking core recoveries.

Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	- The 2015 drilling programme involved the drilling of 10 drillholes across the tenements. These varied in depth from 72 m (drillhole QEM002) to the deepest hole at 120 m (QEM004), drilled during August 2015. The drilling was completed by rotary core drilling, using 4C (100mm) core. The drill diameter for the chipped section of the hole was 124 mm where PCD bit was used for chipping. - In 2018, QEM commissioned two 4C drill holes (100 mm) core, with non-core sections drilled using 124 mm PCD bits for the dual purpose of infill drilling and to supply material for processing studies. - In 2019, QEM commissioned five 4C drill holes (100 mm) core, with non-core sections drilled using 124 mm PCD bits for the dual purpose of infill drilling and to supply material for processing studies. The total cumulative drilling was 536 m for all seven 2018/2019 holes. - The 2021 drilling programme involved the drilling of 6 drill holes across the tenements (plus one redrill). These varied in depth from 41.5 m (drillhole QEM023R) to the deepest hole at 83.5 m (QEM018). Drilling was completed by rotary core drilling, using 4C (100mm) core. The drill

Criteria	Explanation	Commentary
		diameter for the chipped section of the hole was 124 mm where PCD bit was used for chipping. The total cumulative drilling was 458.5 m for all seven holes. - In 2022, QEM commissioned five 4C drill holes (100 mm) core, with non-core sections drilled using 124 mm PCD bits for the dual purpose of infill drilling and to supply material for processing studies. In total, 242 m was drilled. - In 2023, QEM commissioned twelve 4C drill holes (100 mm) core, with non-core sections drilled using 124 mm PCD bits for various purposes, focused on resource exploration, groundwater bore installation, geotechnical analysis and waste characterisation. In total, 620 m was drilled. - All QEM drill holes were geologically logged on site, photographed, geophysically logged and surveyed. Cores were labelled and boxed before dispatch to the laboratory for analysis.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	- Core loss has been documented in the field during logging and sampling of the core. - Calculations have been performed to accumulate total core loss over the sampled interval. The core recovery from the entire Julia Creek Project is >90%, which is deemed appropriate for resource classification purposes. Detailed records have been kept of core recoveries which have allowed for analysis of the influence of core recovery on quality during resource estimation. - Geophysical validation, via gamma, caliper and density down hole surveys have used to correct logs and identify sections of core loss.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* • *The total length and percentage of the relevant intersections logged.*	- Detailed logging of chips and core was conducted. Chips and core photographs were taken as well. All cores were geologically logged, marked and photographed. - Final drill logs include information on detailed lithological logging of the drill core, geophysical logging, core recoveries, quality and the initial interpretation in terms of stratigraphy. All drillhole logs were corrected to downhole geophysics. - The detail contained in these logs is considered sufficient for the purpose of resource estimation.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	- For the 2021 QEM drilling programme, each sample was delivered to the lab as full cores then slabbed lengthways to provide ¼ core for the below workflow. The other ¾ core was used for an alternative testing workflow. - All QEM core samples were double bagged on-site and transported to the laboratories for testing. The labs, ALS and Mitra PTS, comply with Australian Standards for sample preparation and sub-sampling. All samples were subjected to a coarse crush and fine crush. The coarse crush size was -6mm for 70% of the sample. Samples were riffle split into 5 kg portions. One 5 kg portion was stored, and the other 5 kg portion was subjected to fine crush. Fine crush was -2mm for 70% of the sample. The fine crushed 5 kg portion was split into 2.5 kg portions - one for the proximate

Criteria	Explanation	Commentary
	• *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	analysis and the other for ICP-AES analysis. For the 2015 drilling programme, the proximate analysis was done at ALS Gladstone division and ICP-AES done at Townsville division. For the 2018, 2019, 2021, 2022 and 2023 drilling programmes, ICP-MS and ICP-AES were conducted by Bureau Veritas. - For the 2015, 2021, 2022 and 2023 drilling programmes, following proximate analysis, Mitra PTS used the remaining sample, combined by length density weighting into sedimentary units as instructed by contract geologists, for Modified Fischer Analysis (MFA). - For the 2018 and 2019 drilling programmes, sample combination was not required before MFA testing, as original sampling was done to the lithological units.

Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*
	• *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*
		- ALS Minerals and Geochemistry Laboratory (ALS Townsville and ALS Gladstone laboratory in Queensland), Bureau Veritas and Mitra PTS adhere to internal QAQC and inter-laboratory QAQC checks. All determinations performed adhere to the American Society for Testing and Materials (ASTM) guidelines.
		- ALS, Bureau Veritas and Mitra PTS comply with ASTM standards for all ore quality tests and are certified by the National Association of Testing Authorities Australia (NATA). ALS laboratories and Mitra PTS are regularly benchmarked by external auditors against the highest professional laboratory standard – ISO 17025.
		- Accreditation to this standard provides assurance that the laboratory systems are robust and maintained at a world-class level.
		- The Quality Assurance/Quality Control processes employed by QEM are as follows:
		    - Duplicates were inserted at a frequency of 1 in 15 (approximately 7% of samples).
		    - Certified Reference Materials (CRM) were inserted at a rate of 1 in 10 samples. Five CRMs were used, consisting of high grade and low grade equivalent materials.
		    - Blanks were inserted into the sample stream at a rate of 1 in 30 (~3% of samples).
		    - Umpire Checks were conducted on 1 in 10 samples. These were tested by ALS in Brisbane with ICP-MS by analytical methods ME-MS61 and ME-MS81.
		    - Alternative Test Methods were utilised to ensure accuracy of the primary assay method. Both XRF and Lithium Borate Fusion digest with Laser Ablation ICP-MS finish were applied at a rate of 1 in 10 samples. These checks were completed by Bureau Veritas in Perth, using analytical methods with the laboratory codes XRF202 and LA101.
		- Weatherford Wireline Services, Borehole Wireline Pty Ltd and Well Search Pty Ltd performed all downhole geophysical logging. Downhole sample spacing for all tools is 1 cm. Density, gamma, calliper, sonic, verticality and resistivity tools were run.

Criteria	Explanation	Commentary
		- Weatherford Wireline Services, Borehole Wireline Pty Ltd, Well Search Pty Ltd are ISO9001 certified and use numerous Quality Control procedures, from the set-up and calibration of downhole tools to the final delivery of client data.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data*	- Verification of assay data was performed by means histograms of sedimentary unit composites constructed to check for outliers. - No outliers were found. Once imported into MineScape gridded assay values were visually inspected to check for anomalies. - The first two 2015 holes drilled (QEM001 and QEM002) were drilled adjacent to old CSR holes (597.8_709.9 and 596_710). Intersection depths for the top of the Coquina agreed with CSR holes to within 1 m. Although, the total thickness of the Toolebuc did differ by between 10% and 20%, however when the CQU unit is discarded (as it is from the resource) the remaining thickness of the Toolebuc Formation matched the historical holes to within an acceptable margin. - All results received from the laboratories were supplied in elemental format (ppm). As the Vanadium price is quoted according to the concentration of the oxide (V2O5), assay data in V ppm was converted to wt% oxide prior to importing into the Geological database. The ppm value was firstly divided by 10 000 to convert to wt%. The wt% of the element (V) was then multiplied by 1.7852 to convert to wt% V2O5. - Two historical drillholes were twinned as part of the 2021 drilling programme, for the purpose of further validating the reliability of historic data. The outcome of the twinned drillholes was that the thickness of, and depth to historic drilling results was confirmed, however the elevation of the units showed slight discrepancies. Further investigation has confirmed that the elevation of drillhole collars from historic data is less reliable than the collar elevations surveyed in 2021, which is consistent with previous assumptions. - The twin drillhole results between hole QEM018 and 592_710 show close agreement, however the results between hole QEM020 and 594_710 are less convincing. This suggests that although the historic data is sufficient supporting data for resource classification, it is preferential to use modern drilling as points of observation.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	- A differential GPS survey of all collars has been conducted upon completion of drilling by registered surveyors, M.H.Lodewyk Pty Ltd. The grid system used is MGA 94 Zone 54. - Old drillhole coordinates are in AMG 84/66 Zone 54 and were transformed into MGA 94 Zone 54 prior to importing into the database. - The topography surface was generated from an airborne LiDAR survey completed by Aerometrix over the QEM tenure package flown in 2022. The surface resolution is >1 m.

Criteria	Explanation	Commentary
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	- Data spacing is sufficient to establish continuity in both thickness and grade. - Samples have been composited by lithological unit (CQU, CQLA, CQLB, OSU and OSL) for the resource estimation. These composites range between 1.5 – 3 m in thickness.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	- The deposit type is a weakly folded syngenetic sedimentary style deposit, therefore vertical drillholes are deemed an appropriate orientation for the purpose of unbiased sampling. - Minor extensional structures have been identified in the project with the assistance of seismic surveys, however these are not related to mineralisation and hence have not introduced a sampling bias.
Sample security	• *The measures taken to ensure sample security.*	- Sample security was ensured under a chain of custody procedure utilised between QEM and Contract personnel on-site and the receiving laboratories.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	- No audits of sampling etc. done however a comprehensive set of internal company procedures exist and have been adhered to.

Section 2 - Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Commentary</th></tr>
<tr><td>Mineral tenement and land tenure status</td><td>

Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.
The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.

</td><td>
- QEM's Julia Creek Project comprises of EPM 25662, EPM 25681 EPM 26429 and EPM 27057. When combined, these leases cover a total area of 249.6 km².
<table>
<tr><th>Tenement</th><th>Concession Type</th><th>Area (km²)</th><th>Status</th><th>Granted</th><th>Expiry</th></tr>
<tr><td>EPM 25662</td><td>Exploration Permit Minerals other than Coal</td><td>134.5</td><td>Granted</td><td>22/01/2015</td><td>23/01/2025</td></tr>
<tr><td>EPM 25681</td><td>Exploration Permit Minerals other than Coal</td><td>6.4</td><td>Granted</td><td>06/03/2015</td><td>5/03/2025</td></tr>
<tr><td>EPM 26429</td><td>Exploration Permit Minerals other than Coal</td><td>35.2</td><td>Granted</td><td>16/03/2017</td><td>15/03/2027</td></tr>
<tr><td>EPM 27057</td><td>Exploration Permit Minerals other than Coal</td><td>73.6</td><td>Granted</td><td>02/05/2019</td><td>1/05/2024</td></tr>
</table>
</td></tr>
<tr><td>Exploration done by other parties</td><td>

Acknowledgment and appraisal of exploration by other parties.

</td><td>
- In 1981, CSR Ltd. drilled a series of exploration holes within the current QEM's Julia Creek Project for the measurement of oil yield and Vanadium content from the Toolebuc Formation. The drillholes reached a total depth of between 46 m and 161m, intersecting the Toolebuc Formation between 35 m to 142 m.
</td></tr>
<tr><td>Geology</td><td>

Deposit type, geological setting and style of mineralisation.

</td><td>
- The Early Cretaceous Toolebuc Formation is the target geological horizon at the Julia Creek Project. This stratigraphic unit occurs throughout the Eromanga and Carpentaria Basins in eastern, central and northern Queensland and into portions of the Northern Territory and South Australia.
- The Eromanga Basin is a sub-basin of the Great Artesian Basin and consists of several thick sequences of non-marine to marine sedimentary units. The Toolebuc Formation is part of the Rolling Downs Group of the Eromanga Basin that covers a wide but relatively shallow structural depression in eastern Australia, over an area of 1.5 million Km².
- The Toolebuc Formation is an early Cretaceous aged (Albian approximately 110 My) sedimentary unit that consists of a lower kerogenous shale (Oil Shale) and an upper interbedded limestone (coquina) and shale unit (Coxhell and Fehlberg, 2000). The Toolebuc Formation crops out at the margins of the Eromanga and Carpentaria basins or, in the case of the Julia Creek area, where it is draped over an original basement high (the St Elmo Structure). Where the unit crops out, it forms low rubbly, topographic highs which have been the source of road-building materials.
</td></tr>
</table>

Criteria	Explanation	Commentary
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* • *easting and northing of the drill hole collar* • *elevation or RL (Reduced Level - elevation above sea level in metres) of the drill hole collar* • *dip and azimuth of the hole* • *down hole length and interception depth* • *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case*	- See the Appendix for a complete table of drill hole information relevant to the current mineral resource estimate.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated*	- For the mineral resource estimate, 0.5 m samples have been composited to the lithological units (CQU, CQLA, CQLB, OSU, OSL), typically between 1.5 - 3 m. - No metal equivalents or cut off grades have been used.
Relationship between mineralisation widths and intercept length	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *• If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	- The orientation of drilling/sampling is not seen to introduce any bias as all drilling is vertical and mineralisation is stratiform, with the host Toolebuc Formation is regionally flat lying, exhibiting gentle folding across the project area.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any*	- See Appendices.

Criteria	Explanation	Commentary
	significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	- All exploration results pertaining to holes drilled during QEM drilling at the Julia Creek Project have been fully documented in this report. Holes drilled previously have been reported in QDEX reports by CSR Ltd. and others.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples - size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	- Extensional structures in the project area have been interpreted by Velseis, who completed two seismic surveys across the project in 2019 and 2023 respectively. - In 2019, QEM commissioned Velseis to conduct a 26 km 2D seismic survey using mini-SOSIE. The seismic survey consisted of two east-west lines, line 01 being 17 km and south of that line 02 being 9 km long. - In 2023, QEM again commissioned Velseis to conduct a 7.3 km 2D seismic survey using mini-SOSIE. The seismic survey consisted of two east-west lines. Line 01 is located north of the existing 2019 survey lines at a length of ~3.6 km and south of that is line 02, located between the 2019 survey lines, approximately 3.7 km long. - The results showed that seams are continuous across the surveyed area and that there are some minor N-S striking faults, with the largest fault displacement calculated at 12.5 m and the bulk of the interpreted structures appearing to be below the 3 m resolution limit.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	- Additional drilling on the eastern side of the deposit is required to upgrade the resource confidence.

Section 3 - Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	Explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	- All data relevant to previous resource estimates was provided to Measured by QEM. This data was provided in the form of Minescape tables and design files, plus a series of Excel spreadsheets, las files etc. - Measured Group has created a GDB database and loaded all relevant data into that database. GDB is a proprietary database platform, provided by ABB. It includes a standard set of data validation checks which are tested during the data loading process. Any data which fails the validation checks cannot be loaded into the database. - In addition to data used for previous resource estimates, a large amount of historical and regional data was also captured, loaded to the database, and validated in a similar manner.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	- The competent person visited the site in August 2022. There was a rig active during this visit, so the drilling, sampling and logging procedures were observed and found to be representative of the data used in this resource estimate.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	- The main data sources used in the estimate are the lithological logs, core photographs, downhole geophysical logging, and assays for both base metals, proximate analysis and oil yield. - Confidence in the sedimentary correlations is considered high as they are based on downhole geophysics, assays and core photographs. Secondary confirmation of the interpretation is the results of the seismic surveys and gridded model itself which shows good continuity between data points. Therefore, the current drilling density is considered sufficient for seam thickness and quality and has been confirmed with geostatistics for the resource classifications assigned.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	- See figures in appendices. - The target for the Resource (Toolebuc Formation) extends across the entire project area. The project area is approximately 30km wide by 12km. Target horizon (Toolebuc) found at depths of between 18 m and 140 m below surface. The Toolebuc Formation is centred around a regional basement high known as the St Elmo Structure.

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Commentary</th></tr>
<tr><td>Estimation and modelling techniques</td><td>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.
The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.
The assumptions made regarding recovery of by-products.
Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).
In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
Any assumptions behind modelling of selective mining units.
Any assumptions about correlation between variables.
Description of how the geological interpretation was used to control the resource estimates.
Discussion of basis for using or not using grade cutting or capping.
The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</td><td>- The FEM interpolator was used for surface elevation, thickness and trend. Ordinary Kriging has been used for interpolation of V_2O_5 wt%. Linear interpolation (Inverse Distance power 1) was used for other grade parameters including oil grade parameters
- Grid cell sizes of 50 metres for the topographic model, 50 metres for the structural model and 250 metres for the quality model were used.
- No assumptions have been made regarding the correlation between grade variables or selective mining units in regard to modelling techniques, however there is good evidence to suggest that high V_2O_5 is related to high oil content and that both variables are related to organic matter.
- Visual validation of all model grids performed to ensure extreme values have not influenced any of the grids. The entire deposit is considered a single domain for each sedimentary unit in terms of unit thickness and grade.</td></tr>
<tr><td>Moisture</td><td>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</td><td>- All tonnages have been adjusted to in-situ density, using the Preston Sanders method. In-situ moisture by stratigraphic unit has been applied as per the table below<table><tr><th>Unit</th><th>In-situ moisture</th></tr><tr><td>CQLA</td><td>1.77</td></tr><tr><td>CQLB</td><td>2.82</td></tr></table></td></tr>
</table>

Criteria	Explanation	Commentary
		OSU 11.76 OSL 13.31
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	- The Mineral Resources contained in this report are confined within the concession boundaries. - No minimum thickness cut off was used for calculating resources. - No oil yield cut-off was applied to the oil shale estimate, however the CQLA unit was excluded from the oil shale estimate, because the oil yield was often below 40%. - A cutoff of 0.2 V_2O_5 wt% was used for the Vanadium resource in the Oil Shale units, and a cutoff of 0.15 V_2O_5 wt% was used for the Coquina Units. The lower cutoff for the Coquina units is based on recent and historical processing studies, which show that the limestone portion of the Coquina units can be separated from the oil shale portion of the coquina units through the use of simple beneficiation techniques. This simple beneficiation can upgrade Vanadium grade up to 3.5 times
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	- Open-pit mining methods are envisaged. A high-level pit optimisation study has been undertaken, based on production of a Vanadium product only. A sale price of $8.50 USD/lb was assumed, which is considered to be sustainable (perhaps conservative), given the high price of Vanadium over the past 3 years. Mining, processing and transport costs and parameters were built into the optimisation using estimates based on current open-cut operations in the region. The study resulted in a series of shells showing positive, break-even and negative margins. - Although not considered in the revenue factors used in the Pit Optimisation study, it is possible that additional by-products (other than V_2O_5 and crude oil) such as other base metals (Copper (Cu), Molybdenum (Mo), Nickel (Ni), Zinc (Zn), and Aluminum (Al)) and cement products could be produced as part of the Vanadium processing, which may have a positive impact on revenue assumptions. The competent person is satisfied that this deposit possesses reasonable prospects for eventual economic extraction at this stage.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	- Processing studies have been completed by Brisbane Met Labs (BML), CORE Resources and Petrotec. The WH Bryan Mining Geology Research Centre at the University of Queensland have recently been engaged to provide characterisation studies on the vanadium deportment. GSA Environmental are currently engaged to assist in delineating the processing criteria to optimise the processing stream at Julia Creek. - The BML and CORE studies have concentrated on separation of the limestone component of the coquina from the oil shale component, using floatation, wavetable and upflow classifier techniques. The Vanadium is principally contained in the oil shale component, whilst the acid consuming Calcium is principally contained in the limestone component. Results of these studies are summarised as follows:

Criteria	Explanation	Commentary
		1. CORE Resources Float 5: 74% of Vanadium was recovered in 36% of the mass with a grade of 0.61% V2O5. Calcium carbonate (as indicated by Ca and total inorganic carbon assays) was rejected with only 24% recovery in FL5. 2. Brisbane Met Labs (BML) Wavetable (first pass): 54% of mass went to concentrate and 46% mass went into the combined tail. Importantly 60% of the Ca went into the concentrate and 67% of the V in the combined tail. This was a first pass test and involved no grinding. 3. BML Float (replicating CORE Resources Float): Recovered 73% of the V to the concentrate. This is in only 45% of the mass and only 36% of the Ca. 75% of the organic carbon has floated (This includes the oil-rich oil shale). It does appear like the V is associated with the organic matter, Zn, Al, Cu, and Si. 4. BML Up-flow classifier (Reflux): 92% V in 64% of mass 5. Petroteq: Extracted 65% of the oil and retained all the metals in the residual material which is 20% of the mass. - Recent characterisation studies completed at the WH Bryan Mining Geology Research Centre at the University of Queensland have indicated that montmorillonite clays are the predominant host for vanadium in the feed provided by QEM, hosting more than 90% of the total vanadium. Further work will be completed by UQ, focusing on separating montmorillonite from the bulk feed. - Furthermore, there was no significant vanadium hosted by calcite, which was shown to represent between 18 to 25% of the bulk original feed. This suggests that separation methods to remove calcite prior to leaching could effectively reduce acid consumption and processing costs. CORE have been engaged to continue testwork for pre-treatment of the CQLA and CQLB to reject calcite. - GSA Environmental are currently engaged to delineate the process criteria of the vanadium extraction process from the oil shale ash. The initial phase has highlighted several areas that will require optimisation testing. These findings are expected to be completed by mid-2024. Further testing stages will include a pilot-scale test, with a commercial scale test to follow.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status*	- Measured has not conducted any environmental assessment in the concession area.

<table>
<tr><th>Criteria</th><th>Explanation</th><th>Commentary</th></tr>
<tr><td></td><td>of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</td><td></td></tr>
<tr><td>Bulk density</td><td>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.
The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.
Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</td><td>- Relative density (ad) has been determined from analysis and modelling of samples within each of the modelled units. The method of analysis was conducted using Australian Standard AS1038.21.1.2/21.1.1
- Relative density has then been adjusted to in-situ density, using the Preston Sanders method, and this in-situ density has been used to estimate tonnes. In-situ moisture by stratigraphic unit has been applied as per the table below
<table><tr><th>Unit</th><th>In-situ Moisture</th></tr><tr><td>CQLA</td><td>1.77</td></tr><tr><td>CQLB</td><td>2.82</td></tr><tr><td>OSU</td><td>11.76</td></tr><tr><td>OSL</td><td>13.31</td></tr></table></td></tr>
<tr><td>Classification</td><td>The basis for the classification of the Mineral Resources into varying confidence categories.
Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).
Whether the result appropriately reflects the Competent Person’s view of the deposit.</td><td>- Resource classification is based on an assessment of the variability of critical variables (Vanadium grade, oil grade and sedimentary unit thickness) through statistical analysis, geostatistical analysis and by an assessment of the degree of geological complexity (general dip and structure).
- The presence of assay results for Vanadium has been set as the minimum requirement for a point of observation.
- Minimum spacing between points of observation has been set to 4000m (and no further than 2000m from a point of observation) for the inferred category, and 1200m (and no further than 600m from a point of observation) for the indicated category, based on ranges derived from variography. No attempt has been made to classify the resource at measured status, at this stage of the project. The further acquisition of data (infill drilling) will be required to obtain an upgrade in confidence of the Vanadium Resource.
- Within the Indicated category polygon, the classification of resources within a 10-meter corridor of the interpreted faults has been downgraded to the inferred category. This adjustment is attributed to reduced geological confidence, the potential for resource loss, and other related mining factors.</td></tr>
</table>

Criteria	Explanation	Commentary
Audits or reviews.	• *The results of any audits or reviews of Mineral Resource estimates.*	- No audits or reviews of this estimate have been done to date.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	- The resource classification is considered to address the level of confidence in thickness and base metal/oil yield variability across the deposit on a global basis. - Faults have been well defined in the indicated portion of the deposit through use of a number of techniques, including drilling, 2D seismic and analysis of regional topography.

APPENDIX C: DRILL HOLE DATA

Hole Name	Easting	Northing	Elevation (m)	Depth (m)
589_717	588546.243	7716842.280	129.49	88.68
590_708	590123.211	7708177.354	130.00	129.70
591_717	591135.223	7716781.263	128.63	57.91
592_708	592123.199	7708177.344	135.00	95.60
592_714	592121.212	7714093.300	136.21	54.70
594_708	594123.179	7708177.324	135.00	72.85
594_714	594121.819	7714176.493	135.17	14.00
596_708	596123.168	7708177.304	140.00	61.50
596_712	596123.184	7712177.290	136.65	49.40
596_714	596201.182	7714213.275	136.16	45.00
596_716	596067.187	7716075.256	138.59	40.72
598_702	598123.139	7702177.305	142.00	94.00
598_708	598123.148	7708177.294	145.25	91.88
598_712	598123.164	7712177.280	141.00	52.40
598_714	598123.164	7714177.273	142.00	50.60
598_716	598123.164	7716177.266	142.00	45.80
600_716	600123.152	7716177.266	143.00	59.70
609_708	609123.079	7708177.214	143.50	86.65
613_702	613123.031	7702177.195	150.30	94.57
613_708	613123.048	7708177.184	147.00	84.69
615_705	615123.011	7705177.165	146.50	133.67
BB131	585423.253	7709577.389	121.90	154.50
BB137	579023.290	7703177.452	138.70	183.50
BB138	585573.245	7703177.402	134.10	177.39
BB139	591523.199	7703697.356	128.00	141.40
BB144	578813.293	7697177.473	126.50	186.50
BB145	583473.259	7697177.433	137.20	209.40
BB146	591523.190	7697577.371	129.50	172.80
JCD006	585073.250	7697977.420	134.00	207.50
JCD009	586873.243	7705427.394	124.00	161.70
OXT002C	602823.130	7717277.232	148.00	106.66
OXT003C	601423.135	7711677.261	142.00	101.36
OXT005C	612123.066	7716177.186	142.00	166.59
QEM001	597886.038	7710105.911	139.33	66.00
QEM002	596123.044	7710176.117	139.89	72.00

QEM003	598927.563	7709004.036	140.14	79.15
QEM004	603711.307	7710766.867	151.03	120.00
QEM005	596977.074	7709125.191	141.42	79.00
QEM006	602342.307	7713670.916	148.52	114.00
QEM007	595977.645	7708973.562	140.55	78.00
QEM008	612013.330	7710773.046	143.10	96.00
QEM009	604631.221	7708035.133	150.73	108.00
QEM010	606711.508	7709820.309	144.48	102.00
QEM011	599745.534	7710910.778	139.72	90.00
QEM012	600903.011	7708494.859	146.40	108.00
QEM013	610783.982	7706999.564	148.22	96.00
QEM014	596979.004	7711084.462	136.28	66.00
QEM015	596987.612	7710144.064	138.47	75.00
QEM016	596993.805	7707991.502	140.77	75.00
QEM017	597942.770	7709038.149	141.59	84.00
QEM018	592111.993	7710182.436	134.81	83.50
QEM019	593108.627	7710165.089	134.70	72.05
QEM020	594111.998	7710169.918	137.30	65.50
QEM021	595119.904	7710180.546	139.74	65.50
QEM022	595166.369	7709053.955	139.49	65.50
QEM023	594101.476	7709006.835	135.62	65.50
QEM024	593636.905	7712773.718	137.69	49.08
QEM025	594240.386	7712783.256	136.83	39.99
QEM026	594808.137	7712783.176	136.41	36.15
QEM027	594257.718	7712153.485	138.77	59.60
QEM028	591864.173	7712793.714	134.58	57.50
QEM029	595316.806	7711991.238	137.51	59.80
QEM030	595920.221	7711248.499	138.80	54.60
QEM031	594839.850	7711193.600	139.59	39.70
QEM032	593735.633	7711191.070	139.11	55.80
QEM033	593910.255	7712432.118	138.34	40.04
QEM034	594532.338	7712436.667	138.22	32.03
QEM035	593842.458	7711993.527	139.07	52.00
QEM036	594715.454	7712002.555	138.85	47.70
QEM037	594064.411	7711680.341	139.52	42.37
QEM038	594487.415	7711676.512	139.31	53.50
QEM039	593054.122	7709760.992	135.44	68.80
QEM040	596094.703	7709806.832	141.15	83.35
WEN_1W	604373.102	7703377.251	147.00	103.23

WEN_2E	610623.048	7701577.207	152.00	104.00