Quantum Graphite

Quarterly Activity Report and Appendix 5B
Period Ending 31 December 2019
For Immediate Release
31 January 2020

Highlights

- **Robust project economic and financial metrics delivered by updated JORC 2012 Uley 2 Mining Study and Ore Reserve estimate.** Sensitivity analysis conducted during the study demonstrates **a positive NPV even with a 20% decline in revenues and a simultaneous 20% increase in all operating and corporate costs**.
- The study's key life of mine economic and financial parameters are summarised below:

Net Present Value (Uley 2 first stage)	A$207 million
Capital costs	A$79.977 million
Processing cost (PCAF)	A$55.30 per tonne
Mining cost (MCAF)	A$2.50/t milled at surface plus 5c for every additional 4m depth
Operating Costs	A$439 dmt (inclusive of drying & bagging)
Product price	US$919 dmt (Ex works)

- The NPV of A$207M is based on **Proved and Probable Resources only,** below, on a cut-off grade of 3.5% ensuring significant project expansion available utilising total Uley 2 Mineral Resources.

Classification	Tonnes (kt)	Total Graphitic Carbon (%)
Proved	811	11.66
Probable	3,191	11.95
Total	4,003	11.89

- Final DFS, to be released next month. In addition to Uley 2 base case scope, schedule and budget, **DFS will include the implementation of the recommendations of DFS engineers, Lycopodium Minerals, for the Uley 2 production expansion**.

- Marketing efforts focused on re-engaging with **customers that had previously prequalified Uley flake product**.
- Memorandum of Understanding concluded with The Sunlands Company Pty Ltd (TSC) detailing:
    - **Offtake arrangements governing the supply of graphite to TSC** for the commercialisation of its thermal battery technologies;
    - **Technical collaboration between the parties** relating to the development and manufacture of TSC's thermal energy storage cells.
- Memorandum of Understanding concluded with Iron Road Limited in connection with the Company's interest in the utilisation of the proposed Cape Hardy port facility as a logistics solution for the export of its natural flake graphite production from its Uley 2 mine.
- **Existing pilot process plant sold for A$150,000 resulting in a reduction of rehabilitation liabilities associated with the process plant by at least 50%**.
- Completion of consolidation of the Company's share capital on a 1 for 35 basis.

Summary of the JORC 2012 Uley 2 Mining Study and Ore Reserve estimate

During the December 2019 quarter the **JORC 2012 Uley 2 Mining Study and Ore Reserve estimate** was concluded (see ASX announcements of 27 November and 11 December 2019 respectively).

(a) JORC 2012 Ore Reserve Estimate updated on revised Key LOM Economic and Financial Parameters

The study's key LOM economic/financial input parameters and modifying factors are summarised below.

Crusher feed	500,000 tpa
Graphitic carbon grade	11.89%
Graphitic carbon recovery	84%
Concentrate purity	94% total graphitic carbon (TGC)

Capital Costs	A$79.977 million
Processing cost (PCAF)	A$55.30 per tonne
Mining cost (MCAF)	A$2.50/t milled at surface plus 5c for every additional 4m depth
Operating Costs	A$439 dmt (inclusive of drying & bagging)
Product price	US$919 dmt (Ex works)

The study delivered Uley 2 Proved and Probable Resources set out in the table below at a 3.5% TGC cut-off.

Classification	Tonnes (kt)	Total Graphitic Carbon (%)
Proved	811	11.66
Probable	3,191	11.95
Total	4,003	11.89

The project's financial metrics are based solely on the above Proved and Probable Resources. None of the Uley 2 Resources classified as Inferred Mineral Resources was utilised for the purposes of the mine plan and accordingly significant upside resource potential is available to the project.

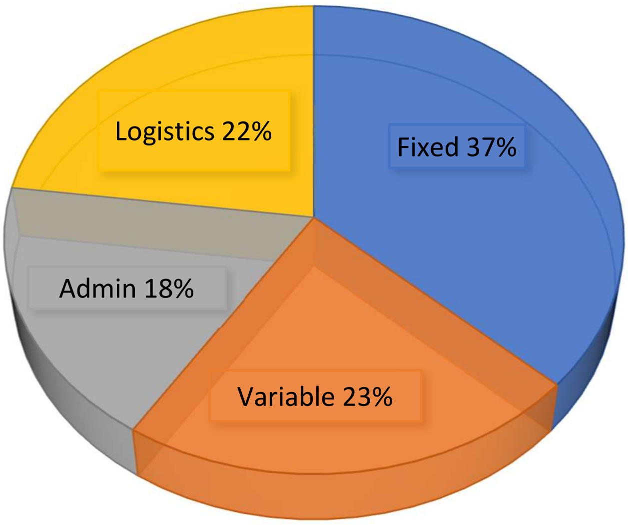
(b) Project Capital and Operating Costs Estimates

The capital costs estimate of A$79.977 million for Uley 2 and the annual operating costs estimate of A$20.299 million are commensurate with definitive feasibility study and were estimated by the Ore Reserve estimate contributors, including Lycopodium Minerals (see study report - JORC Code 2012 Table 1, Section 4 Estimation and Reporting of Ore Reserves disclosure).

The capital cost estimate has been prepared and based on an EPCM contract execution strategy.

An EPCM Engineer will be engaged to complete all detailed engineering for the process plant and infrastructure, as well as managing the procurement of all mechanical equipment, off-site fabrication and on-site installation works.

The operating costs estimate for processing the graphitic ore is based on treating 500,000 tpa of ore to produce 55,000 dmtpa of saleable high purity flake concentrate. The operating costs estimate does not include any contingency allowances and is exclusive of local and regional government rates and charges.



The respective proportions of key operating costs are illustrated in this chart.

The operations are significantly impacted by the method of transporting the flake graphite concentrate including its packaging into 1 tonne bags.

This is reflected in the magnitude of the proportion of the variable and logistics costs which collectively represent 45% of the overall operating costs.

(c) Mine Plan

The optimisation for the pit design and mine plan was undertaken on material exclusively classified as Measured and Indicated Mineral Resources, on a 3.5% TGC cut-off. No material classified as Inferred Mineral Resource was utilised for the pit design or mine plan. Key parameters applied in the pit design optimisation:

- Pit design and mine plan material considerations included the following:
- Mining will be undertaken by conventional open pit methods of load and haul, utilising small mining equipment comprising 100t diesel hydraulic excavators and 60t off-highway dump trucks.
- The life of mine waste to ore strip ratio is approximately 4.6:1.
- Pit slope parameters were based on the slope parameters and conditions within the historical Uley 1 pit and the supporting geotechnical investigations undertaken by Barrett and Fuller.
- Grade control is expected to be undertaken using surface trenching using Ditch Witch equipment.
- No mining dilution was included in the optimisation work given the expected strong visual mining control. A mining recovery of 95% was assumed.
- A minimum cutback mining width of 25m was adopted.

(d) Process Flowsheet

The study adopted the process flowsheet outlined in the metallurgical testwork program results (see ASX announcement of 11 June 2019). The flowsheet was generated from a process plant designed for optimum flexibility to maximise recovery and flake size at grade with minimum operating costs. The flowsheet utilises unit operations that are well proven in the industry.

The process plant will accept run-of-mine ore and liberate graphite particles through crushing and grinding. The graphitic flakes will be sequentially concentrated and delaminated using progressive flotation and polishing (regrind) mills with the final product being dried and screened for bagging.

The flotation and polishing sections will be the critical processing functions for graphite recovery, upgrading of the flake to maximise graphite purity and maintaining coarse flake size as far as practicable.

(e) Market Pricing

The Company completed an analysis of the forward supply and demand outlook, including long-term pricing forecasts, for the Uley flake graphite based on the set of 4 discrete size fractions and purities distribution (see table below) determined by the metallurgical test work program.

Size Fraction	Size Fraction	Approx. Weight Dist.	Graphitic C Purity	LOI (%)
+300	+50	10.5	97.8	0.26
-300+150	-50+100	35.4	97.2	0.34
-150+75	-100+200	27.1	96.6	0.36
-75	-200	27.0	90.7	0.73

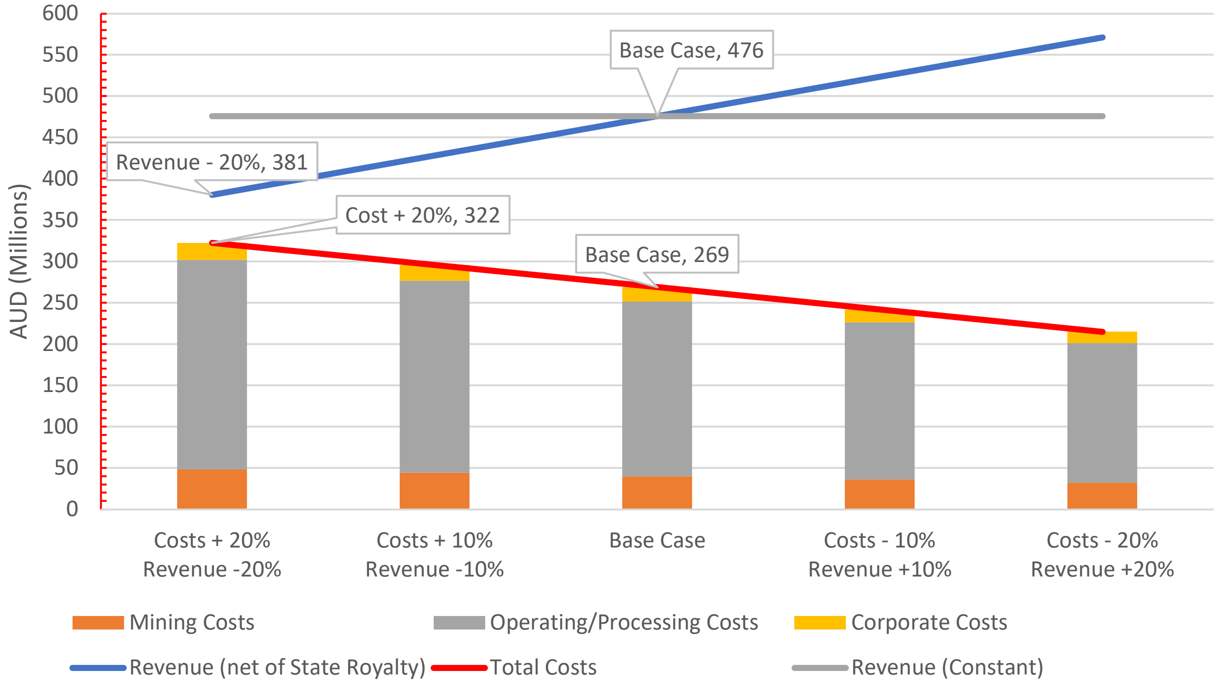
The basket price of US$919 adopted in the study was determined following this analysis which included a review of the range of prices applicable to the company's target market segments that consume high purity flake graphite products falling within the abovementioned specifications.

(f) Study Sensitivity Analysis

A sensitivity analysis conducted during the study indicated a positive NPV even with a 20% decrease in revenues and a 20% increase in all operating and corporate costs.

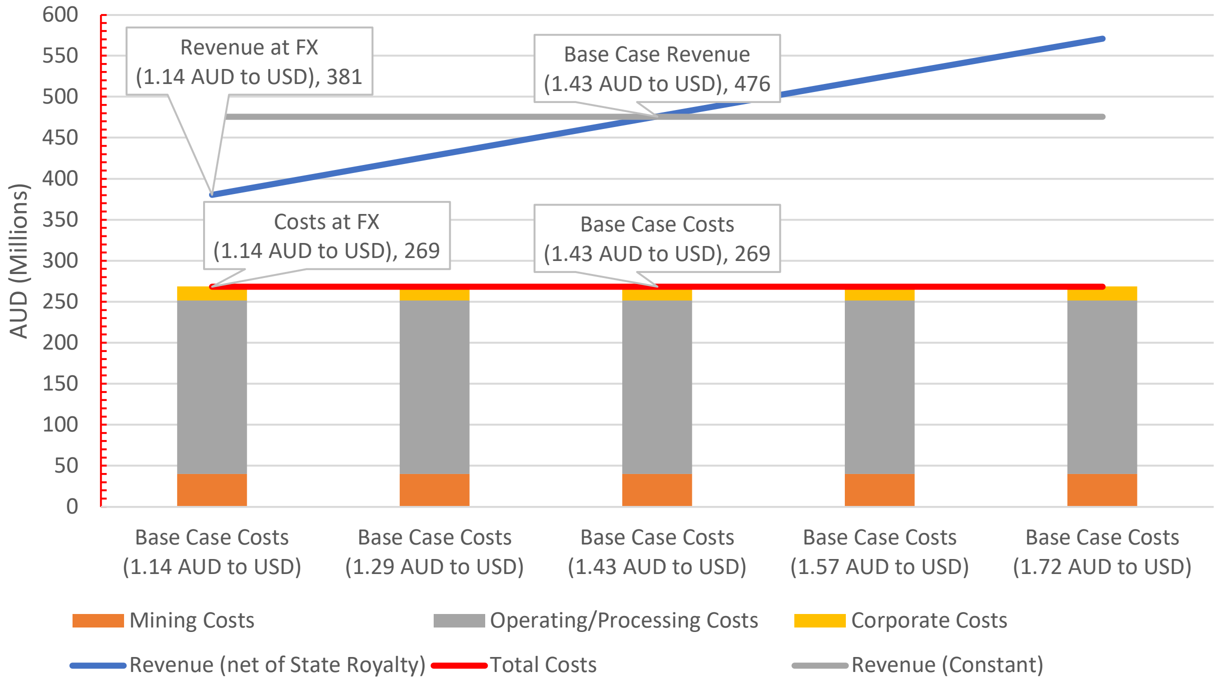
This is illustrated in the graph below which charts the sensitivity of the base case to ± 20% sensitivity for both revenues and costs.

Cost and Revenue Sensitivity



The graph below illustrates the sensitivity of the project to foreign exchange (FX) movements. The impact of changes in FX rates is limited to revenues as substantially all costs associated with the project are denominated in Australian dollars.

Cost and Revenue Sensitivity to FX Movements



(g) Site Infrastructure and Tailings Storage Facility (TSF)

The company proposes to utilise the existing site infrastructure that serviced the previous operations subject to the changes identified in the study report

The existing HDPE lined tailings storage facility of approximately 25 hectares was constructed in the north of the lease as part of the previous operation. The new facility will be a single cell with a footprint area of approximately 29 hectares utilising the existing tailings storage facility infrastructure and its geomembrane liner where practicable.

Offtake and General Market Developments

The company's efforts to re-engage with prospective customers principally in the European refractories market segment continued during the quarter. With the benefit of the production data from the DFS, the Company has identified specific offtake targets for the product range as reflected in the graphite production distribution table above. These targets include the companies that prequalified Uley product in 2014.

Recent price information suggests that there has been little change in the market. Prices for large flake continue to remain stable in contrast to lower grade flake graphite concentrate, especially fines, which face significant and continuing price pressures.

The Sunlands Co. Collaboration

During the quarter the company announced (see ASX announcement of 21 November 2019) a memorandum of understanding (MOU) concluded with The Sunlands Co (TSC).

TSC is the owner of certain proprietary thermal management and storage technologies that can utilise Uley 2 high purity natural flake graphite for its thermal energy storage cells. These cells have broad application and include large scale systems for the storage of energy sourced from significant renewables installation to deliver continuous dispatchable power when required and smaller scale systems for edge of grid supply balancing and augmentation of existing electricity infrastructure.

The MOU provides the framework for:

- the offtake arrangements that will govern the Company's supply of flake graphite to TSC and the company's provision of downstream services such as advanced processing that may be required by TSC for the final assembly of its thermal battery cells;
- the Company's support of TSC's commercialisation activities including contributing to TSC's tender submissions and providing technical information and support to TSC and its systems installations.

The parties have agreed that any offtake agreement concluded under the MOU should be an exclusive arrangement between them subject to their respective capability and capacity. Further that the selling price shall not be less than the basket price as determined under the DFS.

The MOU is non-binding, will have an initial term of 6 months and can be extended by agreement. The MOU will be terminated, including within the 6 months initial term, if the parties enter into any binding agreement relating to the areas of collaboration.

Iron Road Ltd Memorandum of Understanding

During the quarter the Company also announced (see ASX announcement of 4 December 2019) a memorandum of understanding (MOU) with Iron Road Limited (IRD), the owners of the Cape Hardy port facility planned for the Eyre Peninsula. Under the MOU the company and IRD will work together to advance the Company's interest in the utilisation of the Cape Hardy port facility as a logistics solution for the export of the Company's production.

In particular, the parties will collaborate to develop a working proposal that meets the Company's requirements of low cost and efficient direct access from the Cape Hardy port facility to the Port Adelaide Outer Harbour. Avoiding the expensive intermodal movements from Port Lincoln, around the gulf to the Port Adelaide Outer Harbour not only eliminates substantial costs but delivers significant environmental benefits.

The MOU will have an initial term of two years and may be terminated earlier by the parties with notice. The MOU is non-binding except to the extent of the provisions dealing with term and termination, confidentiality and intellectual property created under the MOU and the administration.

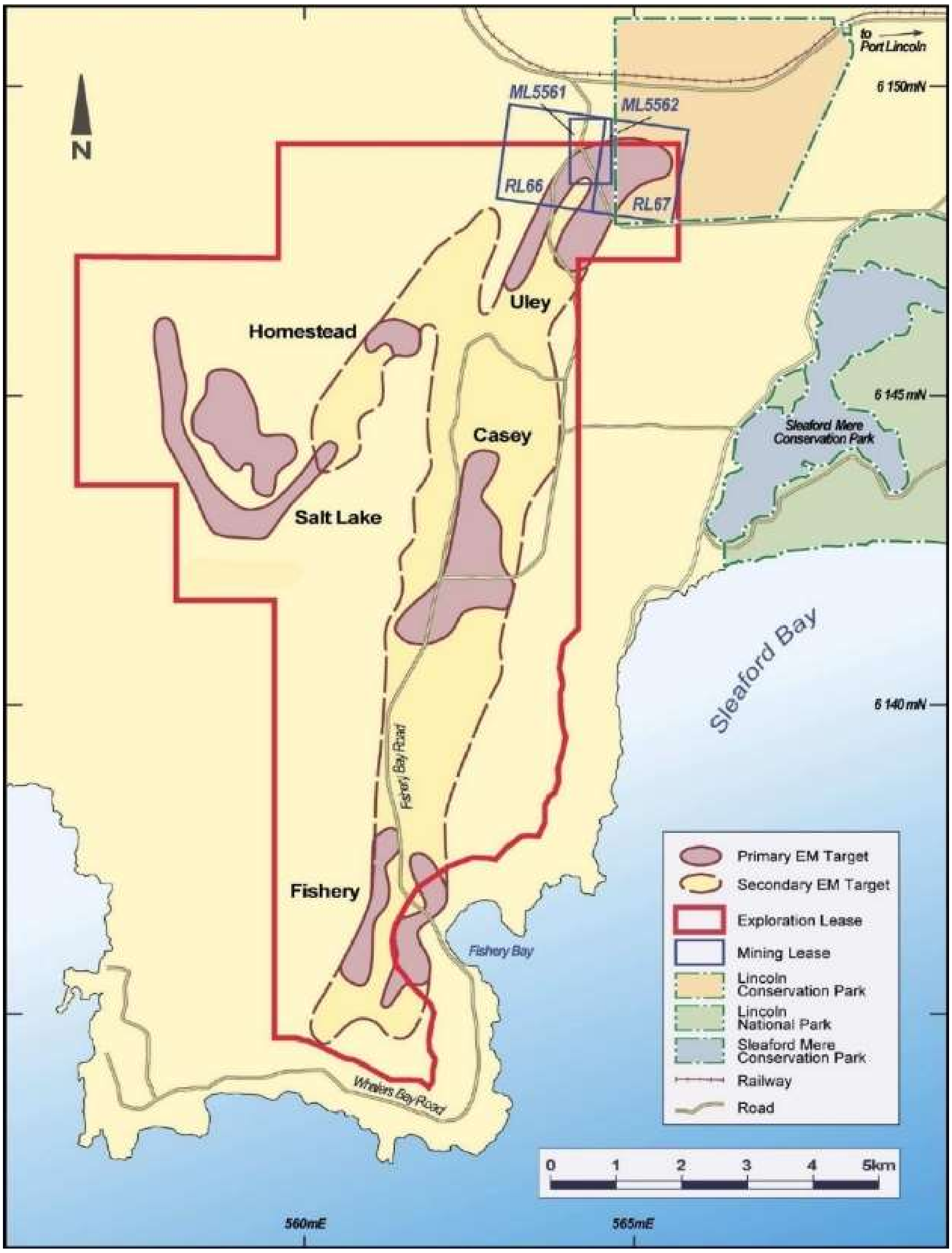
Sale of Existing Pilot Plant

The Company concluded the sale of the existing pilot process plant (see ASX announcement dated 27 November 2019) for A$150,000 and the completion of certain site remediation works that will result in a reduction by more than 50% of the environmental liabilities associated with the rehabilitation of the pilot process plant.

Schedule of Tenements (ASX Listing Rule 5.3.3)

Tenement	Tenement Type	Interest[1]	Changes during the Quarter
ML5561	Mining Licence	100%	Nil
ML5562	Mining Licence	100%	Nil
RL66	Retention Licence	100%	Nil
RL67	Retention Licence	100%	Nil
EL6224	Exploration Licence	100%	Nil

1. All interests are registered in the name of the company's subsidiary, Quantum Graphite Operations Pty Ltd and held as at the end of the quarter.



Corporate Information and Announcements

As at 31 December 2019 the company had 218,874,240 ordinary shares and 28,571,429 unlisted options on issue and 1,028 shareholders. The top 20 shareholders held 66.94% of the issued ordinary shares in the company.

As at 31 December 2019 the company held cash at bank of $296,087. As at 31 January 2020 the company held cash at bank of $210,516.

This report should be read in conjunction with all prior announcements made by the company to the ASX including all announcements released under the company's previous code, VXL (on and from 18 November 2013 until 30 November 2016) available at http://quantumgraphite.com/investors.

Appendix 5B (Mining exploration entity and oil and gas exploration entity quarterly report)

The pro forma Appendix 5B (Mining exploration entity and oil and gas exploration entity quarterly report) is attached to this report.

For further Information

For further information contact:
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Competent Persons Statement

QGL confirms that it is not aware of any new information or data that materially affects the information included in this announcement and that all material assumptions and technical parameters relating to Mineral Resources is based on, and fairly represent, the Mineral Resources and information and supporting documentation extracted from the reports prepared by a competent person in compliance with the JORC Code (2012 edition) and released to the ASX (including under the Company's previous code, VXL on 17 December 2014, 5 May 2015 and 15 May 2015 respectively).

Forward Looking Statements

All statements other than statements of historical fact included in this announcement including, without limitation, statements regarding future plans and objectives of are forward-looking statements. When used in this announcement, forward-looking statements can be identified by words such as 'may', 'could', 'believes', 'estimates', 'targets', 'expects' or 'intends' and other similar words that involve risks and uncertainties. These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions regarding future events and actions that, as at the date of this announcement, are expected to take place. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the company, its directors and management of QGL, that could cause QGL' actual results to differ materially from the results expressed or anticipated in these statements.

QGL cannot and does not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will actually occur and investors are cautioned not to place undue reliance on these forward-looking statements. QGL does not undertake to update or revise forward- looking statements, or to publish prospective financial information in the future, regardless of whether new information, future events or any other factors affect the information contained in this announcement, except where required by applicable law.

+Rule 5.5

Appendix 5B

Mining exploration entity and oil and gas exploration entity quarterly report

Introduced 01/07/96 Origin Appendix 8 Amended 01/07/97, 01/07/98, 30/09/01, 01/06/10, 17/12/10, 01/05/13, 01/09/16

Name of entity

Quantum Graphite Limited

ABN	Quarter ended ("current quarter")
41 008 101 979	31 December 2019

Consolidated statement of cash flows	Current quarter $A'000	Year to date (6 months) $A'000
1. Cash flows from operating activities		
1.1 Receipts from customers	-	-
1.2 Payments for		
(a) exploration & evaluation	(99)	(238)
(b) development	-	-
(c) production	-	-
(d) staff costs	(23)	(68)
(e) administration and corporate costs	(340)	(520)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	-	-
1.5 Interest and other costs of finance paid	-	(1)
1.6 Income taxes paid	-	-

Consolidated statement of cash flows		Current quarter $A'000	Year to date (6 months) $A'000
1.7	Research and development refunds	276	276
1.8	Other (provide details if material)	(3)	288
1.9	**Net cash from / (used in) operating activities**	**(189)**	**(263)**

2.	**Cash flows from investing activities**		
2.1	Payments to acquire:		
	(a) property, plant and equipment	-	-
	(b) tenements (see item 10)	-	-
	(c) investments	-	-
	(d) other non-current assets	-	-
2.2	Proceeds from the disposal of:		
	(a) property, plant and equipment	-	-
	(b) tenements (see item 10)	-	-
	(c) investments	-	-
	(d) other non-current assets	165	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
2.6	**Net cash from / (used in) investing activities**	**165**	**-**

3.	**Cash flows from financing activities**		
3.1	Proceeds from issues of shares	-	-
3.2	Proceeds from issue of convertible notes	-	-
3.3	Proceeds from exercise of share options	-	-
3.4	Transaction costs related to issues of shares, convertible notes or options	-	(6)
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-

Consolidated statement of cash flows		Current quarter $A'000	Year to date (6 months) $A'000
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
3.10	**Net cash from / (used in) financing activities**	**-**	**(6)**

4.	**Net increase / (decrease) in cash and cash equivalents for the period**		
4.1	Cash and cash equivalents at beginning of period	321	401
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(189)	(263)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	165	165
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	(6)
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	**Cash and cash equivalents at end of period**	**297**	**297**

5.	**Reconciliation of cash and cash equivalents** at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	**Current quarter $A'000**	**Previous quarter $A'000**
5.1	Bank balances	-	-
5.2	Call deposits	297	321
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	**Cash and cash equivalents at end of quarter (should equal item 4.6 above)**	**297**	**321**

6.	Payments to directors of the entity and their associates	Current quarter $A'000
6.1	Aggregate amount of payments to these parties included in item 1.2	(303)
6.2	Aggregate amount of cash flow from loans to these parties included in item 2.3	-

6.3 Include below any explanation necessary to understand the transactions included in items 6.1 and 6.2

Administrative, corporate and compliance services provided to the company.

7.	Payments to related entities of the entity and their associates	Current quarter $A'000
7.1	Aggregate amount of payments to these parties included in item 1.2	-
7.2	Aggregate amount of cash flow from loans to these parties included in item 2.3	-

7.3 Include below any explanation necessary to understand the transactions included in items 7.1 and 7.2

8.	**Financing facilities available** *Add notes as necessary for an understanding of the position*	**Total facility amount at quarter end $A'000**	**Amount drawn at quarter end $A'000**
8.1	Loan facilities	-	-
8.2	Credit standby arrangements	-	-
8.3	Other (please specify)	-	-

8.4 Include below a description of each facility above, including the lender, interest rate and whether it is secured or unsecured. If any additional facilities have been entered into or are proposed to be entered into after quarter end, include details of those facilities as well.

9.	Estimated cash outflows for next quarter	$A'000
9.1	Exploration and evaluation	(64)
9.2	Development	-
9.3	Production	-
9.4	Staff costs	(23)
9.5	Administration and corporate costs	(118)
9.6	Other (provide details if material)	-
9.7	**Total estimated cash outflows**	**(205)**

10.	Changes in tenements (items 2.1(b) and 2.2(b) above)	Tenement reference and location	Nature of interest	Interest at beginning of quarter	Interest at end of quarter
10.1	Interests in mining tenements and petroleum tenements lapsed, relinquished or reduced	-	-	-	-
10.2	Interests in mining tenements and petroleum tenements acquired or increased	-	-	-	-

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.

Signed by the Company Secretary, Mr. Sal Catalano on 31 January 2020.

Notes

1. The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity that wishes to disclose additional information is encouraged to do so, in a note or notes included in or attached to this report.

2. If this quarterly 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 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.