

## ASX ANNOUNCEMENT

31 January 2023

## Activities Report Quarter Ended 31 December 2022

Blue Star Helium Limited (ASX: BNL) (**Blue Star** or the **Company**) is pleased to provide an update on activities undertaken during the quarter ended 31 December 2022.

### Highlights

- Initial Plan of Development completed for world-class Las Animas Helium Project.
- First helium output and sales targeted for H2 CY2023 from high-grade Voyager discovery.
- Final decision on Galactica/Pegasus plant configuration expected during H1 CY2023.
- Further confirmation of high-concentration helium discovery at JXSN#4 discovery well on the Galactica/Pegasus prospect.
- Four helium wells at Galactica/Pegasus received final COGCC approval.
- Well-funded with quarter end cash balance of A\$6.827 million and zero debt.

## OPERATIONS

### Field development

On 19 December 2022, Blue Star announced the key outcomes of its initial Las Animas Plan of Development, which included a mid-stream solution for its initial facility which is to be located on the high-grade Voyager discovery. The plan involves an initial processing facility at Voyager, supplied and operated by a mid-stream company in return for monthly lease payments from Blue Star. This solution is highly attractive to the Company as it minimises upfront capital commitments while delivering highly attractive returns.

Blue Star initiated contract discussion with its preferred midstream provider during the December quarter and negotiations are ongoing during the current quarter. Confirmation of the Voyager process facility lease agreement with the selected mid-stream operator is expected in Q1 CY2023.

### Voyager development plan

An initial three to four development wells are planned at Voyager, the permitting of which is well underway ahead of production guidance. The development plan aims to capitalise on previous exploration drilling success at Voyager by drilling offset wells to the original discovery followed by step out wells within the defined contingent resource.

Figure 1: Voyager field plan view

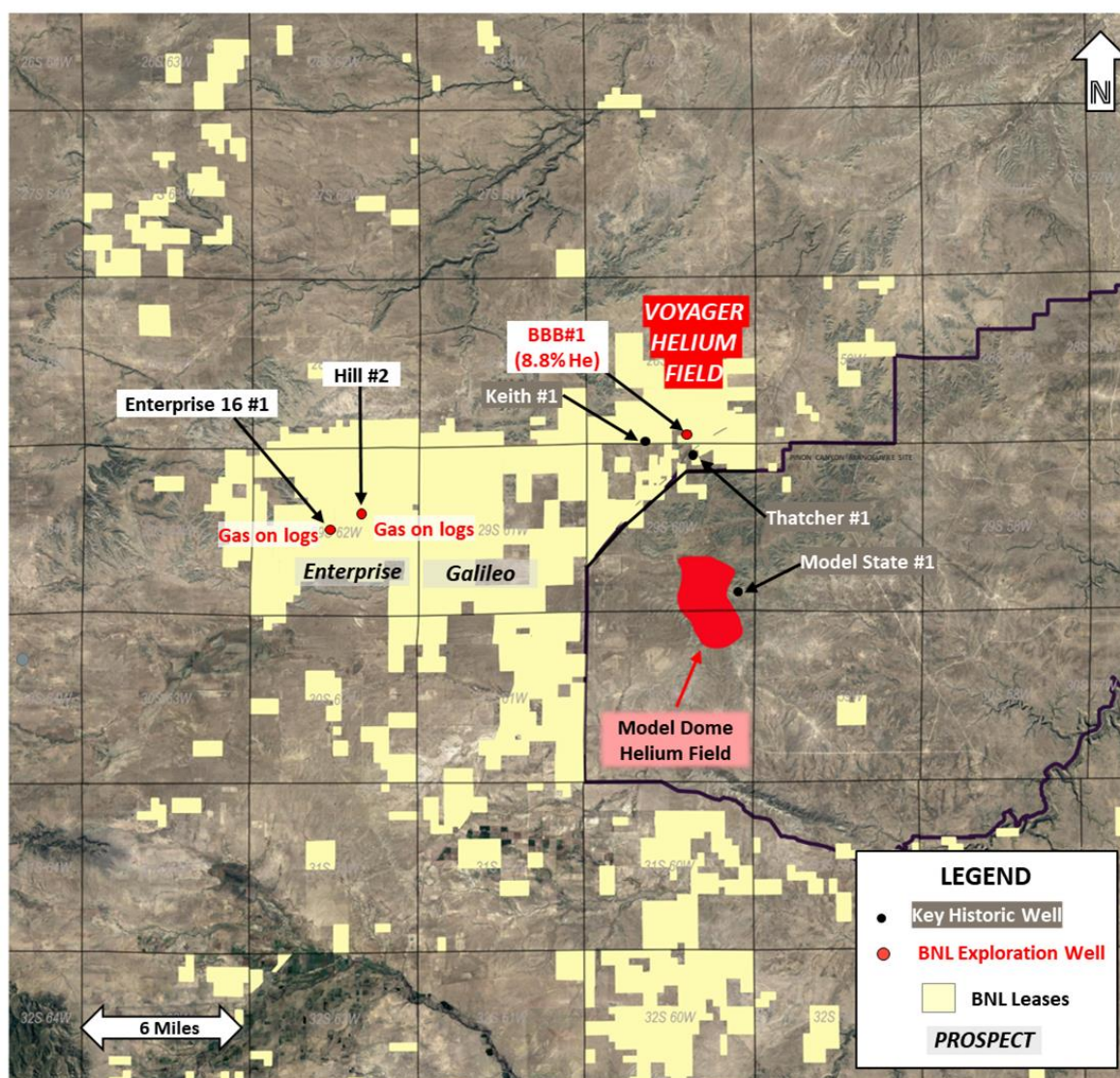


Table 1: Voyager Field Net Unrisked Contingent Resource Estimates

Voyager Field	1C	2C	3C
Net Recoverable Helium (MMscf)	299	643	1,228

Notes to table above:

1. The estimates are reported as at an evaluation date of 1 August 2022.
2. The estimates have been prepared using the probabilistic method and are presented on an unrisked basis.
3. The estimates are presented on a net entitlements basis and represent Blue Star group's net economic interest in the contingent recoverable helium volumes after deductions for the volume weighted royalty burden.
4. The estimates were first published by the Company's market announcement of 27 September 2022. The Company is not aware of any new information or data that materially affects the information included in that announcement and all material assumptions and technical parameters underpinning the estimates in that announcement continue to apply and have not materially changed.

The initial concept of the Voyager plant consists of a Pressure Swing Adsorption (PSA) plant that possesses a nameplate raw gas throughput of 2 mmcf/day for expected helium product gas output

of 98.0%+ purity and targeted helium production of 38 mmcf net to Blue Star in first full capacity year. A detailed breakdown of plant metrics is included in Table 2. The facility processing capacity is readily scalable at modest incremental capital by the addition of membranes and/or further PSA units.

**Table 2: Voyager development plant metrics**

Key Metric	Unit	Value
Nameplate raw gas input	mmcf/d	2.0
Raw gas He concentration	% He	8.0%
Helium recovery	%	90
Helium product purity	% He	98
Plant run time	%	95
Tailgate helium product gas output	mmcf pa	44.4
Net helium product gas output	mmcf pa	37.7

Notes to table above:

- The tailgate helium product gas output is the helium volume at the facility tailgate after applying the recovery, product purity and plant run time factors. It is calculated in respect of the first 12 months of operation after a 6 month ramp up period.
- The net helium product gas output is net to Blue Star after deduction of royalties and after applying the recovery, product purity and plant run time factors. It is calculated in respect of the first 12 months of operation after a 6-month ramp-up period.

The facility plan includes the installation and operation of a gathering system and compressor. The gathering system will be a capital expenditure while the compressor will be leased. The facility will commence operations on site-generated power while the availability of grid power is evaluated. Blue Star expects the initial development to have low capex costs of US\$2.9M. A summary of the key capital and operating cost projections are outlined in Table 3 (based on 8% helium concentration in the raw gas input of up to 2.0 mmcf/d).

**Table 3: Voyager development cost projections**

Key Metric	Unit	Value
<b>Pre-production capital expenditure</b> (site works and gathering system)	US\$M	1.4
<b>Pre-production capital expenditure</b> (drilling of four development wells)	US\$M	1.5
<b>Operating cost (per mcf He product gas)</b> (site works and gathering system)	US\$/mcf	84

Notes to the table above:

- Basis of estimation: operating cost per mcf He net to Blue Star (after deduction of royalties and after applying the recovery, product purity and plant run time factors stated in Table 2) in respect of the first 12 months of operation after a 6-month ramp-up period. The comparable figure including the ramp up period is US\$91/mcf.
- Pre-production capital expenditure estimates prepared to an accuracy of  $\pm 20\%$ .
- Pre-production capital expenditure does not include the cost of drilling additional wells over the project's operating life. Blue Star has modelled the drilling of a further 7 wells over the project life at a projected cost of US\$375,000 per well drilling and completion plus gathering system costs of US\$210,000 per well.

The Company intends to sell its initial helium volumes through either premium short-term contracts or in the spot market. Short term helium sales contracts are currently priced at a significant premium to long term contracts, with a strong expectation for this differential to persist. Blue Star

currently has proposals from three gas marketers, all with helium marketing expertise. The Company plans to utilise an agent(s), as well as retain the right to market gas directly during the initial phases of the development.

Blue Star's selected mid-stream supplier and operator expects to deliver, install and commission the facility during H2 CY2023, subject to receipt of all necessary permits, surface use and access agreements. First helium output and subsequent product sales are expected to commence promptly after commissioning is complete.

### Galactica/Pegasus development plan

Sproule is currently finalising a resource update for Galactica/Pegasus, which is expected to result in the declaration of contingent helium and CO<sub>2</sub> resources. Further engineering and market work is underway to refine the initial planned development configuration and forecast helium and CO<sub>2</sub> production and cost estimates.

A range of development pathways are currently under consideration, including a leased plant and a third party operated option. The final development is expected to include a CO<sub>2</sub> extraction route and by-product stream. The Galactica/Pegasus facilities are planned to be permitted in parallel with the Voyager development. A final decision on the initial Galactica/Pegasus plant configuration is expected in H1 CY2023.

See Blue Star ASX announcement dated 19 December 2022 for further details on the Las Animas Plan of Development.

### Well drilling activities and analysis

#### Confirmation of high concentration helium discovery at JXSN#4 (Galactica/Pegasus prospects, 100% BNL)

During the quarter, the Company received and analysed the log data from the JSXN#4 helium discovery well drilled on the Galactica/Pegasus prospect. Drilling was completed in late September 2022 to a total depth of 1,043 feet encountering both the upper and lower Lyons sands which both flowed gas to the surface.

Well log analysis subsequently confirmed 233.5ft gas column with 133.5 ft of net pay. Sampling during the overnight flow of the comingled upper and lower Lyons reservoir yielded 6.06% helium while an individual sample taken for lab analysis yielded 4.20% helium. Both are considered high concentration and are higher than the helium content yielded in the previous three discoveries on Galactica/Pegasus. The well was recorded flowing at 124.6 mcf/d during drilling and sampling. Shut in pressures were the same as observed in the previous JXSN wells which flowed between 202 and 412 mcf/d.

The three exploration wells drilled earlier this year at Galactica/Pegasus – JXSN#1, JXSN#2 and JXSN#3 – displayed significant helium bearing gas columns of up to 230 feet and containing up to 3.14% helium (refer Table 4). These wells also proved the Company's previous interpretations of gas on logs at historic wells, Denton B #1 and Colorado #B-1, also located on the Galactica/Pegasus structure. The key results from the wells are summarised in Table 4 below:

**Table 4: Key results from recent Galactica/Pegasus exploratory water wells**

Key Parameter	JXSN#1	JXSN#2	JXSN#3	JXSN#4
Helium concentration (%)	1.98	3.14	2.14	4.20 & 6.06
Gas column in Lyons formation (ft)	217.5	101+	230	233.5
Net pay in Lyons formation (ft)	143.5	101	153.4	133.5
Stabilised initial flow rate (mcf/d)	412	202	412	N/A

## Well permitting

### Galactica/Pegasus prospects (100% BNL)

During the quarter, the Colorado Oil and Gas Conservation Commission (**COGCC**) progressed the approvals of seven wells under the Galactica/Pegasus prospect.

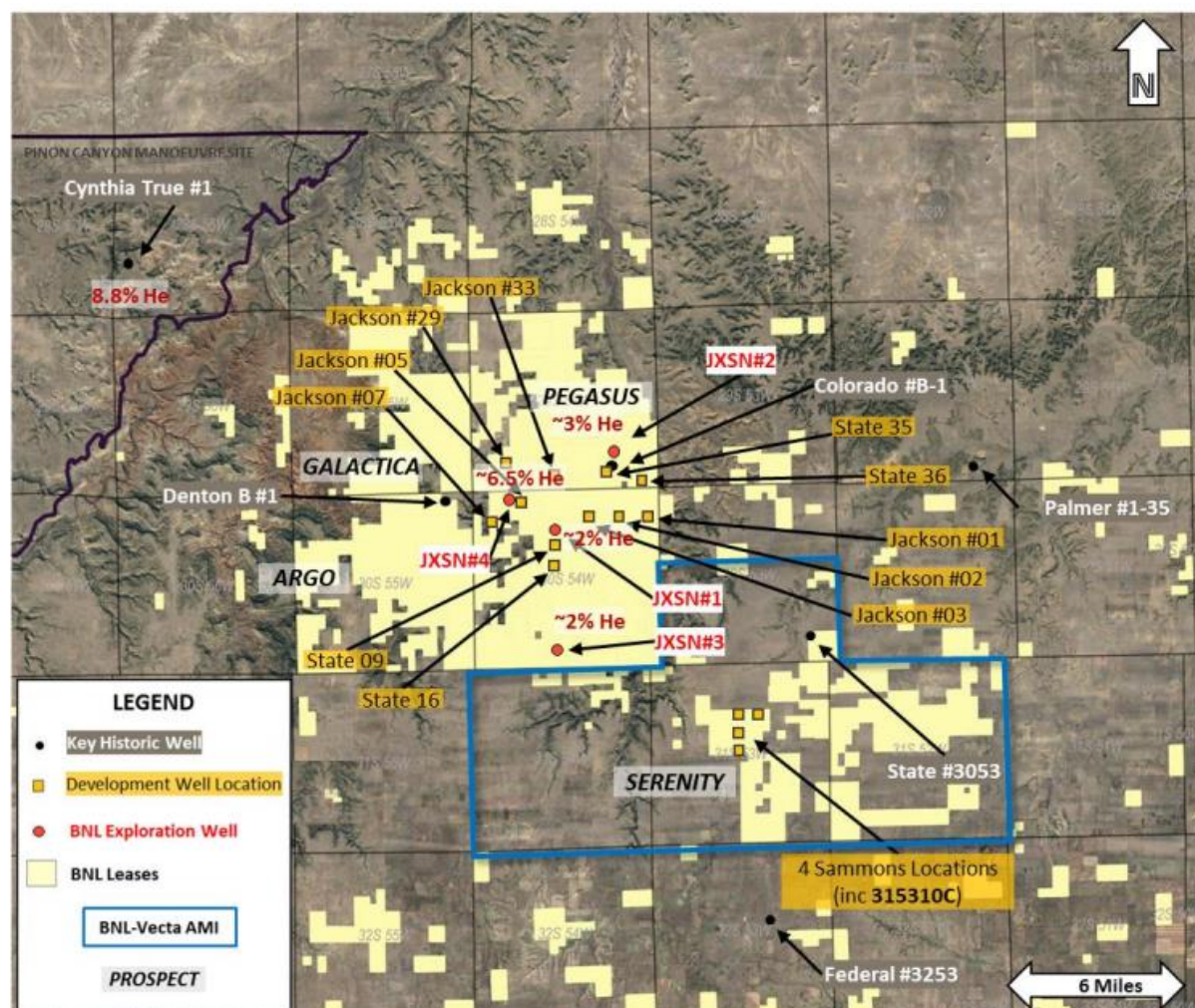
On 3 October 2022, the COGCC accepted the “Galactica-Pegasus OGD P II” as complete and passed it to the final review and hearing phase.

On 29 September 2022, the COGCC approved the Forms 2A relating to the State 09, 16, 35 and 36 development wells. These wells relate to the “State 09 & 16 3054” and “State 35 & 36” OGDs. On 9 January 2023, the COGCC approved the Forms 2, which are the final approvals required to drill these four wells.

These wells are to be drilled as offset development wells to the JXSN#1 and JXSN#2 helium discoveries made in the previous year and are expected to be utilised as production wells.

The specific locations of these planned development wells are highlighted in Figure 2 below:

**Figure 2: Development well locations at Galactica/Pegasus**



### Voyager prospect (100% BNL)

On 20 October 2022, the COGCC passed the BBB 2860 OGD P and moved it to the final review and hearing phase. The OGD P relates to two wells, BBB 33 and BBB 34, that offset the BBB#1 discovery well on Voyager.

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## Total permitted wells or wells under permitting

As at the date of this report, Blue Star has an interest in 18 helium wells that are permitted or under permitting. In addition, preliminary survey work is underway for an additional 38 potential drilling locations across the portfolio as part of the Company's rolling permitting strategy. Table 5 below depicts the respective status of these permits and their locations.

**Table 5: Current permitting schedule for Blue Star's Las Animas acreage**

Well Permitting Schedule								
Prospect	Location Selection <sup>1</sup>	Survey <sup>2</sup>	Permit Preparation	COGCC Review	COGCC Hearing	Form 2	Issued	Total
Enterprise	1	2	1				1	5
Galactica	4	3	5	3			2	17
Galileo			3					3
Pegasus			6	1	3		2	12
Serenity						3	1	4
Voyager	10		3		2			15
<b>Total</b>	<b>15</b>	<b>5</b>	<b>18</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>6</b>	<b>56</b>

Notes:

- Preliminary feasibility survey studies have been undertaken on each of these locations.
- Detailed survey plat packages being prepared for inclusion in initial applications to COGCC.

## CORPORATE

### Balance sheet

Blue Star's cash balance at 31 December 2022 was approximately A\$6.827 million. The Company has zero debt, excluding typical trade creditor balances.

## TENEMENT TABLE

Tenements held at the end of the quarter and changes thereof.	Acreage held at the beginning of the Quarter	Acreage held at the end of the Quarter	Acreage acquired (disposed/lapsed)
<b>Project Name</b>			
Held By Production Acreage, Big Star Project, USA	-	-	-
Helium Project, Las Animas, Colorado, USA*	Circa 295,371 gross (212,807 net) acres	Circa 306,581 gross (222,875 net) acres	-

## 5B COMMENTARY

### Description of Selected Items in Appendix 5B

Appendix 5B Reference	Commentary
1.2 (a)	Expensed exploration and evaluation costs
1.2 (c)	Expenditures associated with the P&A of a legacy oil well in Texas.
1.2 (c)	Expenditures associated with the Company's Big Star Project in Texas USA.
2.1 (b)	Expenditures associated with the acquisition of helium leases in Colorado, USA including land manager fees.

2.1 (d)	Capitalised exploration and evaluation costs	Capitalised expenditures associated with exploration and evaluation of the Company's helium acreage in Colorado USA. Includes drilling preparation, permitting, subsurface evaluation and field costs.
6.1 and 6.2	Payments to Related Parties	Includes directors' fees and superannuation paid to directors of \$171K.

The Board has authorised the release of this announcement to ASX.

**For further information, please contact:**

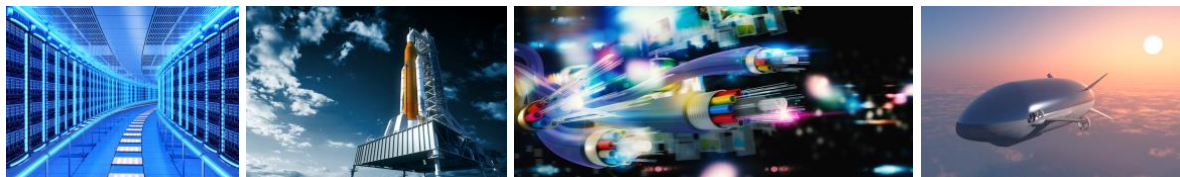
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**About Blue Star Helium:**

Blue Star Helium Ltd (ASX:BNL) is an independent helium exploration and production company, headquartered in Australia, with operations and exploration in North America. Blue Star's strategy is to provide its shareholders with exposure to multiple high-value helium projects in North America. For further information please visit the Company's website at [www.bluestarhelium.com](http://www.bluestarhelium.com)

**About Helium:**

Helium is a unique industrial gas that exhibits characteristics both of a bulk, commodity gas and of a high value specialty gas and is considered a "high tech" strategic element. Due to its unique chemical and physical qualities, helium is a vital element in the manufacture of MRIs and semiconductors and is critical for fibre optic cable manufacturing, hard disc manufacturing and cooling, space exploration, rocketry, lifting and high-level science. There is no way of manufacturing helium artificially and most of the world's reserves have been derived as a by-product of the extraction of natural hydrocarbon gas.





## Appendix 5B

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

Name of entity

Blue Star Helium Limited

ABN

75 009 230 835

Quarter ended ("current quarter")

31 December 2022

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (12 months) \$A'000
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	3	13
1.2 Payments for		
(a) exploration & evaluation	(4)	(335)
(b) development	-	-
(c) production	(3)	(24)
(d) staff costs	(361)	(607)
(e) administration and corporate costs	(392)	(1,196)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	17	23
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	-
1.8 Other (legal fees for dispute resolution)	-	(1)
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(740)</b>	<b>(2,127)</b>

<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) tenements	(169)	(1,273)
(c) property, plant and equipment	(6)	(10)
(d) exploration & evaluation	(1,189)	(5,507)
(e) investments	-	-
(f) other non-current assets	-	-

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

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 months) \$A'000
2.2	Proceeds from the disposal of:		
	(a) entities	-	-
	(b) tenements	-	-
	(c) property, plant and equipment	-	-
	(d) investments	-	-
	(e) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (return of bonds)	-	73
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>(1,364)</b>	<b>(6,717)</b>
<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	-
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	-
3.4	Transaction costs related to issues of equity securities or convertible debt securities	-	(6)
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>-</b>	<b>(6)</b>
<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	9,051	15,632
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(740)	(2,127)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(1,364)	(6,717)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	(6)

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

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 months) \$A'000
4.5	Effect of movement in exchange rates on cash held	(120)	45
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>6,827</b>	<b>6,827</b>

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	6,827	9,051
5.2	Call deposits	-	-
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
<b>5.5</b>	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>6,827</b>	<b>9,051</b>

6. Payments to related parties of the entity and their associates		Current quarter \$A'000
6.1	Aggregate amount of payments to related parties and their associates included in item 1	123
6.2	Aggregate amount of payments to related parties and their associates included in item 2	48

*Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.*

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

7. <b>Financing facilities</b> <i>Note: the term "facility" includes all forms of financing arrangements available to the entity. Add notes as necessary for an understanding of the sources of finance available to the entity.</i>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
7.1 Loan facilities	-	-
7.2 Credit standby arrangements	-	-
7.3 Other (please specify)	-	-
7.4 <b>Total financing facilities</b>	-	-
7.5 <b>Unused financing facilities available at quarter end</b>		-
7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.	N/A	

8. <b>Estimated cash available for future operating activities</b>	<b>\$A'000</b>
8.1 Net cash from / (used in) operating activities (item 1.9)	(740)
8.2 (Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	(1,189)
8.3 Total relevant outgoings (item 8.1 + item 8.2)	(1,929)
8.4 Cash and cash equivalents at quarter end (item 4.6)	6,827
8.5 Unused finance facilities available at quarter end (item 7.5)	-
8.6 Total available funding (item 8.4 + item 8.5)	6,827
8.7 <b>Estimated quarters of funding available (item 8.6 divided by item 8.3)</b>	3.5
<i>Note: if the entity has reported positive relevant outgoings (ie a net cash inflow) in item 8.3, answer item 8.7 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.7.</i>	
8.8 If item 8.7 is less than 2 quarters, please provide answers to the following questions:	
8.8.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?	
Answer: N/A	
8.8.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?	
Answer: N/A	

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

8.8.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer: N/A

*Note: where item 8.7 is less than 2 quarters, all of questions 8.8.1, 8.8.2 and 8.8.3 above must be answered.*

**Compliance statement**

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 31 January 2023

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

**Notes**

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 6: Exploration for and Evaluation of Mineral Resources* and *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg *Audit and Risk Committee*]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.

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