

ASX Announcement

16 April 2024

QUARTERLY REPORT

For the period ended 31 March 2024

ASX Code: MAN

Capital Structure

Ordinary Shares: 615,759,920 Current Share Price: 3.4c Market Capitalisation: \$20.9M Cash: \$15.0M (Mar. 2024) Debt: Nil

Directors

Lloyd Flint Chairman/Company Secretary

James Allchurch Managing Director

Roger Fitzhardinge Non-Executive Director

Contact Details

First Floor 10 Outram Street West Perth WA 6005 Australia

Tel: +61 8 9200 3743

mandrakeresources.com.au

Highlights

- Significant Exploration Target for Lithium mineralisation at the Utah Project, reported in accordance with JORC Code (2012) guidelines
- Exploration Target confirms the 100%-owned Utah Lithium Project as a significant large-scale US Lithium brine project
- Downhole sampling of oil and gas wells returned exceptional lithium concentrations up to 147mg/L
- Work has commenced for potential conversion of the Exploration Target to a Mineral Resource Estimate
- BLM permit received allowing for further well perforation and isolation work to fast track development
- Uranium work continues following rock chip sampling results returning concentrations of uranium up to 0.73% U3O8
- Approx cash position of \$15M

Utah Project – Operations

During the March 2024 quarter, Mandrake Resources Limited (ASX: MAN) (Mandrake or the Company) made a significant lithium discovery at the large-scale 93,755-acre (~379km²) 100%-owned Utah Lithium Project, followed by the release of an Exploration Target for lithium mineralisation.

Mandrake also concluded the first phase of uranium field operations within the Company's project area.

Significant lithium brine discovery

In December 2023, Mandrake completed wireline brine sampling at five oil and gas wells located within the Utah Lithium Project.

Brines collected by Mandrake returned lithium concentrations up to 147mg/L. Significant bromine concentrations up to 3,480mg/L and outstanding potassium (potash) concentrations up to 33,600mg/L obtained from the wireline sampling represent significant potential high-value by-products for Mandrake at the Utah Lithium Project.

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Large scale exploration target at the Utah Lithium Project

The Exploration Target (JORC 2012) ranges from 1.7 to 5.6 million tonnes (Mt) of contained LCE (Lithium Carbonate Equivalent).

Cautionary Statement: The Exploration Target has been prepared and reported in accordance with the 2012 edition of the JORC Code. The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.



Figure 1. Wireline unit conducting brine sampling operations

Exploration Target estimates were made separately for nine individual geologic target units. The units include: the McCracken Formation, Leadville Formation, and Paradox clastic zones 21 (Cane Creek Shale), 15, 12, 10, 9, 8 and 5 (see Figure 2). It is possible that other Paradox clastic zones may be prospective and tested in the future.

The Exploration Target Estimate was calculated using the following criteria:

Lithium Exploration Target = bulk rock volume x effective porosity x concentration of lithium in the brine for each range of porosity and lithium values, for each geologic unit.

See ASX announcement dated 22 January 2024



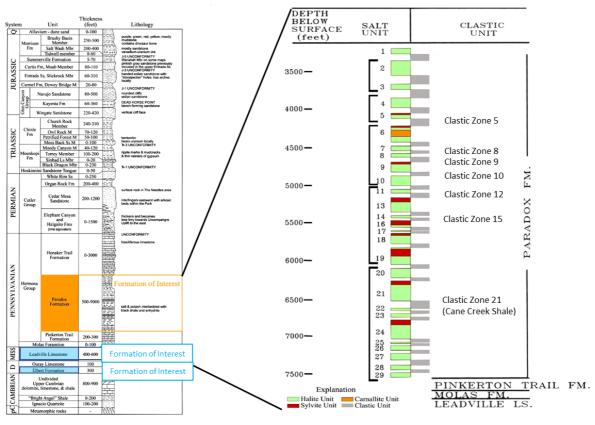


Figure 2. Stratigraphic section showing geologic target intervals within the Mandrake Utah Project. The three main targets for lithium brine are the Pennsylvanian clastic zones within the Paradox Member, the Devonian McCracken Formation and the Mississippian Leadville Formation (Massoth, T. (2012), Well Database and Maps of Salt Cycles and Potash Zones of the Paradox Basin, Utah, Utah Geological Survey, Open File Report 600).

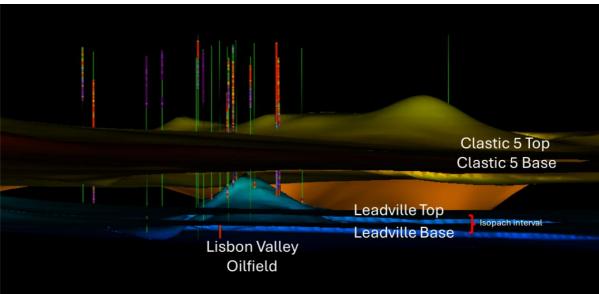


Figure 3. 3D model of stratigraphic intervals at the Mandrake Utah Project. 3D seismic data was integrated to determine the location and orientation of faulting, and to demonstrate the continuity of geologic units.



Table 1: Exploration Target Low Case Parameters - Utah Project

Formation	Rock Volume (cubic metres)	Brine Volume (million cubic metres)	Average Thickness (metres)	Effective Porosity Low	Lithium Low mg/L	Total Tonnes Lithium Low	Total Tonnes LCE Low
Leadville Formation	59,493,970,113	2,975	158	5.0%	55	163,608	870,888
McCracken Sandstone	9,443,794,684	425	24	4.5%	55	23,373	124,417
Paradox Clastic Zone 5	11,795,202,947	472	34	4.0%	83	39,160	208,449
Paradox Clastic Zone 8	6,049,597,247	242	18	4.0%	83	20,085	106,911
Paradox Clastic Zone 9	2,929,288,183	117	9	4.0%	83	9,725	51,767
Paradox Clastic Zone 10	4,241,545,085	170	10	4.0%	83	14,082	74,958
Paradox Clastic Zone 12	1,790,498,399	72	5	4.0%	83	5,944	31,642
Paradox Clastic Zone 15	4,616,946,571	185	11	4.0%	83	15,328	81,592
Paradox Clastic 21 (Cane Creek Shale)	6,583,948,149	263	18	4.0%	83	21,859	116,354

Total Minimum Case Volume of Brine Water: 4.92 billion cubic metres Total Minimum Case Tonnes LCE = 1,666,978 tonnes

Table 2: Exploration Target High Case Parameters - Utah Project

Formation	Rock Volume (cubic metres)	Brine Volume (million cubic metres)	Average Thickness (metres)	Effective Porosity High	Lithium High mg/L	Total Tonnes Lithium High	Total Tonnes LCE High
Leadville Formation	59,493,970,113	5,354	158	9.0%	101	540,800	2,878,679
McCracken Sandstone	9,443,794,684	708	24	7.5%	101	71,537	380,790
Paradox Clastic Zone 5	11,795,202,947	826	34	7.0%	147	121,373	646,067
Paradox Clastic Zone 8	6,049,597,247	423	18	7.0%	147	62,250	331,359
Paradox Clastic Zone 9	2,929,288,183	205	9	7.0%	147	30,142	160,448
Paradox Clastic Zone 10	4,241,545,085	297	10	7.0%	147	43,645	232,325
Paradox Clastic Zone 12	1,790,498,399	125	5	7.0%	147	18,424	98,072
Paradox Clastic Zone 15	4,616,946,571	646	11	14.0%	147	95,017	505,774
Paradox Clastic 21 (Cane Creek Shale)	6,583,948,149	461	18	7.0%	147	67,749	360,627

Total Maximum Case Volume of Brine Water: 9.046 billion cubic metres <u>Total Maximum Case Tonnes LCE = 5,594,141 tonnes</u>

Note: A conversion factor of 5.323 is used to convert elemental Li to Li₂CO₃, or Lithium Carbonate Equivalent (LCE).

Cautionary Statement: The Exploration Target has been prepared and reported in accordance with the 2012 edition of the JORC Code. The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

BLM permit received

During the March 2024 quarter, Mandrake received the required permitting from the Federal US government's Bureau of Land Management (BLM) for the re-entry of two wells at the Utah Lithium Project.

BLM approval follows the submission by Mandrake of a detailed Notice of Intent (NOI) to both the BLM and Utah Division of Oil, Gas and Mining (UDOGM) which outlined proposed exploration and well development activities.

Crucially, permitting allows for the re-configuration of existing oil and gas wells through additional perforations and/or isolation of additional potentially lithium-bearing reservoirs. This



will facilitate the specific targeting of brine reservoirs modelled as containing relatively high concentrations of lithium. The use of existing oil and gas wellbores is highly cost effective when compared to the drilling of a new well.

Lithium forward workplan

Mandrake has commenced the compilation and assessment of data required for the estimation of a Mineral Resource. Forthcoming work will likely include a comprehensive review of existing core data and possibly additional core plug analysis to determine suitability for the generation of effective porosity as well as potential additional lithium brine sampling.

Uranium – Operations

During the March 2024 quarter, Mandrake received rock chip results from preliminary field work designed to assess the uranium potential of its 93,755-acre Utah Project located in the Lisbon Valley mining district.



Figure 4. Carnotite in dark-coloured beds bounded by sandstone (sample LM2)

A total of six samples were collected and submitted to ALS Global's (ALS) laboratory in Reno, Nevada for analysis.

High grade uranium was identified, with samples returning uranium (U3O8) concentrations of up to 0.73%, with the corresponding vanadium (V2O5) concentration exceeding the upper limit (1.79% V2O5) of the laboratory instrument.

Rock chip sampling and mapping was conducted by local consultant geologists targeting areas of relatively high radioactivity in the Salt Wash Member of the Morrison Formation, the Chinle Formation and the Cutler Formation.



Table 3: Utah project rock chip results and observations – uranium and vanadium

Sample	Easting*	Northing*	U (%)	U3O8** (%)	V (%)	V2O5** (%)	Sample Description
LM1	652989	4228661	0.139	0.164	0.009	0.017	Waste pile sample (likely from the Mi Vida Mine). Lightly coloured oxidized material.
LM2	653063	4221856	0.62	0.731	>]1	>1.785 ¹	Black conglomeritic bed bounded by sandstone units of the Salt Wash Member. Suspected carnotite observed.
DE2	655423	4220208	0.324	0.382	>]1	>1.785¹	Grey, fine grained outcropping sediment with likely carnotite and uraninite mineralisation observed.
LM3	653041	4221848	0.446	0.526	0.947	1.691	Black laterally extensive conglomeritic bed bounded by sandstone. Suspected carnotite and uraninite observed.
LM4	656114	4219782	0.359	0.423	0.172	0.306	Coarse grained boulder in float with carnotite and uraninite, genesis undetermined.
DE1	652036	4221398	0.469	0.553	1.632	2.912	Interbedded sandstone and mudstone of varying grain sizes.

^{* -} Datum: WG\$1984 UTM 12N

^{2 -} initial results reported 29 Feb 2024 exceeded reporting limit of instrument. Samples re-analysed.

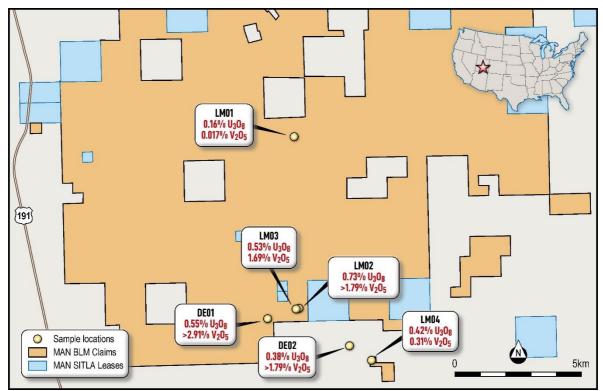


Figure 5. Uranium rock chip sample locations – Utah Project

^{** -} Standard stochiometric conversions used: U to U308 - 1.1792; V to V2O5 - 1.7852

¹ - exceeds reporting limit of instrument



Uranium work currently underway

Petrophysical logs of oil and gas wells compiled by Mandrake include intersections of known uranium host rocks with, in most instances, gamma logs that potentially indicate the presence of uranium mineralisation. This dataset is crucial in that it will likely be able to determine the distribution and volume of uranium-bearing units across the project area.

Similarly, Mandrake is well positioned with the 3D seismic dataset in its possession to determine the thickness and lateral continuity of potential uranium-bearing sediments whilst also potentially assisting with uranium targeting and mapping.

Target prospective areas have been identified, with work streams currently underway to facilitate further investigation and potential quantification.

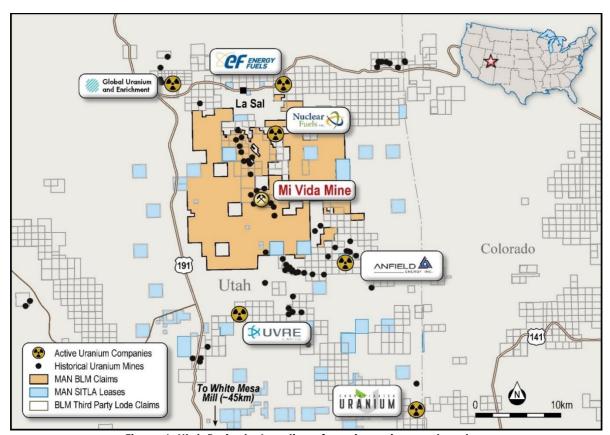


Figure 6. Utah Project – Location of uranium mines and explorers

Uranium potential of the Lisbon Valley, Utah

Utah is the third largest uranium producing state in the US with the Lisbon Valley district by far the most important, accounting for nearly 78 million pounds of U308 production, or 64% of the Utah's total production.²

Uranium and vanadium in the Lisbon Valley mining district were discovered in 1913 as outcrops of basal sandstone at the southeast end of the Lisbon Valley anticline, the dominant geologic feature in the region. Mineralisation was then identified to the north west tracing an arcuate belt 16 miles long by one mile with over 40 historical uranium mines/occurrences, of which 20 are located within Mandrake's Utah Lithium Project tenure (Figure 6).

² Mills, S.E. and Jordan, B., 2021, Uranium and vanadium resources of Utah—an update in the era of critical minerals and carbon neutrality: Utah Geological Survey Open-File Report 735



Declining uranium prices in the early 1980s forced many of the mines in the district and surroundings to close, however exploration activity has since ramped up in the region, attracting a host of uranium juniors (see Figure 6) as well as larger players such as Energy Fuels Inc. (NYSE:UUUU ~ US\$1.2B market cap).

Energy Fuels operates the White Mesa Mill which is the only fully licensed and operational conventional uranium-vanadium mill in the US with a licensed capacity of over 8 million pounds of U3O8 per year and is in the process of restarting production at two historical mines in the La Sal district, immediately to the north of the Utah Lithium Project.

Continued exploration of existing projects

Although the primary focus of the Company has been on the Utah Lithium Project, Mandrake continues to assess the Berinka (gold/copper in NT) and Jimperding (PGE/Ni/Cu in WA) projects.

Corporate

As at 31 March 2024, Mandrake had approx. \$15M in cash.

Additional ASX disclosure information

ASX Listing Rule 5.3.2: There was no substantive mining production and development activities during the quarter.

ASX Listing Rule 5.3.3 - Schedule of Mineral Tenements as at 31 March 2024

Location	Project	Status	Tenement	Interest - start of quarter	Interest - end of quarter
Utah, USA	Utah Lithium	Staked	MANPBLM-1 to MANPBLM-3036	100%	100%
Utah, USA	Utah Lithium	Pursuant to OBA	MANOBA	100%	100%
Utah, USA	Utah Uranium	Staked	MANLBLM-1 to MANLBLM-12	-	100%
NT, Australia	Berinka	Granted	EL31710	100%	100%
WA, Australia	Jimperding	Granted	EL70/5345	100%	100%

ASX Listing Rule 5.3.5: Payments to related parties of the Company and their associates during the quarter per Section 6.1 of the Appendix 5B total \$144,000, comprised of Directors' fees, salaries and secretarial and accounting services performed by directors.

This announcement has been authorised by the board of directors of Mandrake.

About Mandrake Resources

In March 2024, Mandrake released an Exploration Target¹ (JORC 2012) range of 1.7 to 5.6 million tonnes (Mt) of contained LCE (Lithium Carbonate Equivalent) across its 93,755-acre



(~379km²) Utah Lithium Project. Mandrake has commenced the compilation and assessment of data required for the estimation of a Mineral Resource.

Maiden downhole sampling undertaken by Mandrake returned exceptional lithium concentrations up to 147mg/L and outstanding bromine and potassium (potash) values up to 3,480mg/L and 33,600mg/L respectively.

The Utah Lithium Project is located in the Paradox Basin in the south-eastern Utah 'lithium four corners' area. The Paradox Basin hosts the Cane Creek potash mine operated by Intrepid Potash (NYSE: IPI) (the United States' biggest potash producer) and the operations of mid-tier ASX-listed lithium developer Anson Resources (ASX: ASN) who has an existing JORC Mineral Resource of 1.5Mt of Lithium Carbonate Equivalent (LCE) and 7.6Mt of Bromine.³

The Utah Lithium Project also incorporates the Lisbon Valley uranium mining district accounting for nearly 78 million pounds of U308 production, or 64% of the Utah's total production.⁴ Recent field work conducted by Mandrake identified high grade uranium (U3O8) concentrations of up to 0.73%.

For further information visit www.mandrakeresources.com.au

Competent Persons Statement

The technical information in this announcement complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) and has been compiled and assessed under the supervision of Mr James Allchurch, Managing Director of Mandrake Resources. Mr Allchurch is a Member of the Australian Institute of Geoscientists. He has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Allchurch consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

³ ASN ASX release dated 16 October 2023

⁴ Mills, S.E. and Jordan, B., 2021, Uranium and vanadium resources of Utah—an update in the era of critical minerals and carbon neutrality: Utah Geological Survey Open-File Report 735

Appendix 5B

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

Name of entity

MANDRAKE RESOURCES LIMITED		
ABN	Quarter ended ("current quarter")	
60 006 569 124	31 March 2024	

Con	solidated statement of cash flows	Current quarter \$A'000	Year to date (9.months) \$A'000
1.	Cash flows from operating activities		
1.1	Receipts from customers	-	-
1.2	Payments for		
	(a) exploration & evaluation	(330)	(1,998)
	(b) development	-	-
	(c) production	-	-
	(d) staff costs	-	-
	(e) administration and corporate costs	(137)	(355)
1.3	Dividends received (see note 3)	-	-
1.4	Interest received	189	553
1.5	Interest and other costs of finance paid	-	-
1.6	Income taxes paid	-	-
1.7	Government grants and tax incentives	-	-
1.8	Other (provide details if material)	-	-
1.9	Net cash from / (used in) operating activities	(278)	(1,800)

2.	Ca	sh flows from investing activities	
2.1	Pay	ments to acquire or for:	
	(a)	entities	-
	(b)	tenements	-
	(c)	property, plant and equipment	-
	(d)	exploration & evaluation	-
	(e)	investments	-
	(f)	other non-current assets	-

ASX Listing Rules Appendix 5B (17/07/20)

Cons	solidated statement of cash flows	Current quarter \$A'000	Year to date (9.months) \$A'000
2.2	Proceeds from the disposal of:		
	(a) entities	-	-
	(b) tenements	-	-
	(c) property, plant and equipment	-	-
	(d) investments	-	-
	(e) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
2.6	Net cash from / (used in) investing activities	-	-

3.	Cash flows from financing activities		
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	(5)	(5)
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)	-	-
3.10	Net cash from / (used in) financing activities	(5)	(5)

4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	15,288	16,810
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(278)	(1,800)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	-	-
4.4	Net cash from / (used in) financing activities (item 3.10 above)	(5)	(5)

ASX Listing Rules Appendix 5B (17/07/20) + See chapter 19 of the ASX Listing Rules for defined terms.

Con	solidated statement of cash flows	Current quarter \$A'000	Year to date (9.months) \$A'000
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	Cash and cash equivalents at end of period	15,005	15,005

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	505	288
5.2	Call deposits	14,500	15,000
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)	15,005	15,288

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	144
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-
	if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must includ nation for, such payments.	le a description of, and an

7.	Financing facilities 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.	Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
7.1	Loan facilities	-	-
7.2	Credit standby arrangements	-	-
7.3	Other (please specify)	-	-
7.4	Total financing facilities	-	-
7.5	Unused financing facilities available at quarter end -		
7.6 Include in the box below a description of each facility above, including the lende rate, maturity date and whether it is secured or unsecured. If any additional finar facilities have been entered into or are proposed to be entered into after quarter include a note providing details of those facilities as well.		tional financing	

8.	Estimated cash available for future operating activities	\$A'000
8.1	Net cash from / (used in) operating activities (item 1.9)	(278)
8.2	(Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	-
8.3	Total relevant outgoings (item 8.1 + item 8.2)	(278)
8.4	Cash and cash equivalents at quarter end (item 4.6)	15,005
8.5	Unused finance facilities available at quarter end (item 7.5)	-
8.6	Total available funding (item 8.4 + item 8.5)	15,005
8.7	Estimated quarters of funding available (item 8.6 divided by item 8.3)	54.0

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.

8.8 If item 8.7 is less than 2 quarters, please provide answers to the following questions:

8.8.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

Answer: n/a

8.8.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

Answer: n/a

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

Answer: n/a

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:	16 April 2024
Authorised by:	Board of Directors(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.