

March 2024 Quarterly Activities Report

HIGHLIGHTS

Sparc Hydrogen

- Sparc Hydrogen recognised as a finalist in the 2024 Hydrogen Innovation Challenge, organised by Zero Carbon Hydrogen Australia and the Smart Energy Council.
- Subsequent to quarter end, Sparc announced successful testing of scalable second generation reactor design at CSIRO Energy Centre in Newcastle, NSW.
- Substantial engineering and design improvements implemented since first generation prototype, with design principles applicable to pilot scale reactor.
- Advancement of first-of-its-kind pilot plant development.

Graphene

- Sparc Technologies and the South Australian Department for Infrastructure and Transport (DIT) signed a binding agreement to undertake field trials of **ecosparc**[®].
- Key objective of the field trials is to evaluate the application and performance of an **ecosparc**[®] enhanced coating under real-world conditions.
- Completion of successful field trials will mark the final phase of **ecosparc**[®] testing, paving the way for commercialisation.
- Asset owners have registered strong interest in **ecosparc**[®] field trials, driven by anticipated reductions in maintenance costs and environmental and sustainability benefits.

Sodium-ion Batteries

- Further research into sustainable sodium ion battery anode materials conducted at QUT; final milestone report provided to Sparc subsequent to quarter end.

Corporate

- Post quarter end, A\$2.25M share placement (before costs) completed to support Sparc's investment in Sparc Hydrogen and commercialisation efforts for **ecosparc**[®].
- A\$1.422M R&D tax refund for FY23 received during the quarter.
- Nick O'Loughlin appointed Managing Director, Stephen Hunt transitioned to Non-Executive Chairman and Adrien Wing stepped down as Non-Executive Director, remaining as Company Secretary.



Sparc Technologies Limited (ASX: SPN) (**Sparc** or the **Company**) is pleased to provide its March 2024 Quarterly Activities Report.

Sparc Hydrogen

Sparc Hydrogen, a joint venture between the University of Adelaide, Fortescue and Sparc Technologies, continues to progress research and development of its photocatalytic water splitting (**PWS**) reactor technology. Subsequent to the quarter's end, Sparc announced the successful testing of a second generation prototype PWS reactor at the CSIRO Energy Centre in Newcastle, New South Wales ([ASX Announcement 9 April 2024](#)). Completion of the second round of prototype testing was delivered on time and on budget by the Sparc Hydrogen team.

The design of the second generation prototype is built on learnings from the first round of testing completed in Q4 2023 ([ASX Announcement 24 November 2023](#)). Performance of the reactor over numerous trial runs and a range of concentrated solar and thermal operating conditions was significantly improved compared to the first generation prototype, with better temperature and pressure control, gas production and measurement. Hydrogen gas production was close to that which was estimated based on laboratory results using the same photocatalyst material, providing validation for laboratory testing under concentrated solar simulation going forward. Importantly, the second generation prototype has been designed to be easily scalable in order to slot into a linear Fresnel concentrated solar field for pilot scale testing, which is subject to Sparc Hydrogen board approval of Stage 2 of the joint venture.

Sparc believes that the success of the second round of prototyping, which has been supported through funding from Australia's Economic Accelerator (AEA) grant program ([ASX Announcement 19 October 2023](#)) and the [CSIRO Kick-Start Program](#), has fully satisfied the objectives set out at the beginning of the prototype testing at the CSIRO Energy Centre ([ASX Announcement 3 July 2023](#)).

Sparc is also pleased to note the recent progress made by Sparc Hydrogen in developing relationships with leading photocatalyst suppliers with the aim of sharing materials for testing in Sparc Hydrogen's PWS reactor. Sparc considers both reactor development and formalising relationships with photocatalyst developers to be important factors behind a decision to move forward with Stage 2 of the joint venture.



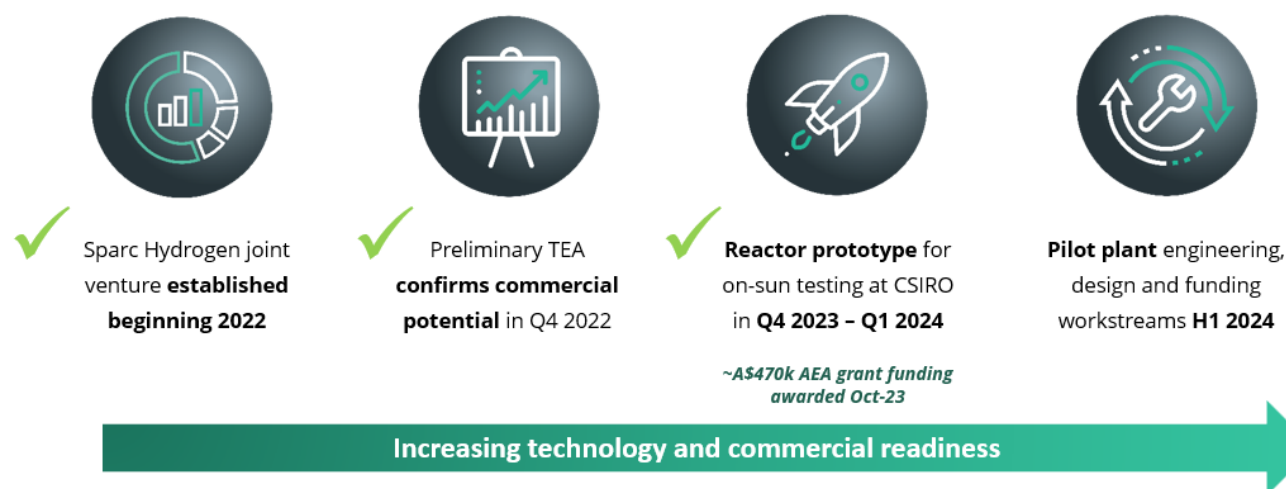
Figure 1: Photos of second generation prototype looking from ground up (left) and side view from the tower (right) ©2024 Sparc Hydrogen



In parallel with the recently completed on-sun prototype testing, Sparc Hydrogen has continued to progress development workstreams for the pilot plant ahead of a decision to move to Stage 2 of the joint venture. A pre-FEED study completed by an external consultant during Q4 2023 demonstrated the ability of Sparc Hydrogen to build and fund a pilot plant incorporating modular, scalable linear Fresnel concentrated solar mirrors. If built, this would be a first-of-its-kind facility demonstrating the combination of photocatalytic water splitting with concentrated solar in an end-to-end green hydrogen production system. Recent work on the pilot plant has focused on detailed reactor design incorporating the specific attributes of the chosen mirror field, site selection, budgeting, and approvals.

Sparc Hydrogen continues to apply for grant funding which would support the costs of R&D and pilot plant construction, albeit this is not a pre-requisite in order to fund the planned activities of the joint venture during Stage 2.

Stage 1 Development Milestones



In March, Sparc Hydrogen was recognised as a finalist in the 2024 Hydrogen Innovation Challenge, organised by [Zero Carbon Hydrogen Australia](#) and the [Smart Energy Council](#). The Hydrogen Innovation Challenge provides a vital platform for innovators to showcase their pioneering technologies to prominent figures in both industry and the renewable energy sector. This award stands as a testament to the dedication of the Sparc Hydrogen team, with the support of Fortescue, the University of Adelaide and Sparc Technologies, in delivering a pioneering direct solar-to-hydrogen technology.

Sparc Hydrogen's lead researcher, Professor Greg Metha, presented on behalf of Sparc Hydrogen at the South Australian Hydrogen Conference (SAHy™) held on 21 March 2024.

Graphene Additive Product, **ecosparc**®

During the quarter, Sparc announced the execution of a binding Trial Agreement with the South Australian Department for Infrastructure and Transport (DIT) ([ASX Announcement 28 March 2024](#)). The Trial Agreement details collaborative field trials involving the application of **ecosparc**® enhanced coatings on steel infrastructure owned by DIT. The [DIT](#) has approximately A\$45 billion in assets in South Australia.

The primary objective of the field trials is to evaluate the application and performance of an **ecosparc**® enhanced coating under real-world conditions. Sparc has noted the strong demand for field trials of **ecosparc**® from asset owners as evidence that there is a market demand for better performing anti-corrosive coatings. Results from an independent life cycle assessment completed in Q3 2023 ([ASX Announcement 12 September 2023](#)) indicated that **ecosparc**® enhanced coatings can reduce the CO₂ emissions and costs



associated with the maintenance of steel assets by 18 - 21%¹ and 19 – 23%¹ respectively, when benchmarked against the same non-enhanced epoxy based protective coatings.² Sparc believes that successful field trials will encourage market demand for **ecosparc**[®] enhanced coatings from large steel infrastructure owners on a commercial basis.

The field trials will incorporate **ecosparc**[®] produced at Sparc's manufacturing facility in Adelaide into a leading anti-corrosive coating. The trials will occur at the West Beach Bridge in Adelaide and the Streaky Bay Jetty on the Eyre Peninsula (See Figures 2 and 3 below). These are ideal pieces of infrastructure for the first field trials of **ecosparc**[®] enhanced anti-corrosive coatings. Successful field trials will represent the final stage of testing **ecosparc**[®] following over 4 years of research and development and >10,000 data points based on accelerated laboratory testing which has consistently demonstrated significantly improved anti-corrosive performance versus existing commercial coatings. Following assessment in real-world environments, Sparc believes that asset owners and coatings companies can make commercial decisions to use **ecosparc**[®] enhanced coatings on steel infrastructure.

During the trials, performance of an **ecosparc**[®] enhanced coating will be compared with a control area coated with a market leading anti-corrosive paint. Application of the coatings in each trial will take place under the same conditions on equivalent steel structures to ensure comparability. The performance of the two coatings will be periodically assessed by an independent third-party expert according to industry inspection and testing protocols.



Figure 2: Trial infrastructure at West Beach Bridge, Adelaide, SA

¹ Bontinck, P, A (2023), Carbon footprint of **ecosparc**[®] graphene additive for protective coating applications, Lifecycles, Melbourne, Australia.

² Investors are encouraged to refer to the Company's ASX Announcement of [12 September 2023](#) for further information regarding the independent life cycle assessment.





Figure 3: Trial infrastructure at Streaky Bay Jetty, Eyre Peninsula, SA

Sparc's key obligations under the binding Trial Agreement include supplying agreed quantities of the **ecosparc**[®] enhanced and unmodified control coatings at Sparc's cost, while the DIT will prepare the relevant steel infrastructure and arrange for coating application. While the financial impact of the Trial Agreement is negligible, it represents a crucial milestone in testing Sparc's flagship graphene-based additive product in relevant real-world environments. Sparc is targeting further field trials with defence, mining and oil & gas companies.



Figure 4: **ecosparc**[®] graphene based additive product produced from Sparc's commercial manufacturing facility

In addition to field trials, Sparc is continuing to work with multiple coating and additive companies to test, evaluate and qualify the **ecosparc**[®] product ahead of adoption into their commercial anti-corrosive coatings. Sparc is also working with its team of global coatings experts to identify new potential customers for the product across tier 2 and regional coatings and additive companies.

During the quarter, Sparc has continued to progress projects with Australian universities and corporations looking at applying graphene-based additives into anti-fouling coatings, composites and other high-growth areas. Sparc is actively assessing collaboration and patent opportunities.



Sodium-Ion Batteries

R&D undertaken during the quarter included activities associated with the final milestone under the Services Agreement with QUT. Battery testwork included additional half-cell and full-cell capacity testing, rate performance and cyclic stability (over 500 cycles). High half-cell reversible capacity results were demonstrated again, broadly in line with the results announced in September 2023 (>400mAh/g). Full cells using commercial cathode materials were successfully produced and cycled, demonstrating reasonable stability. Ongoing work is required to improve initial coulombic efficiencies.

Subsequent to quarter end, Sparc and QUT decided not to proceed with the AEA grant-funded project ([ASX Announcement 30 October 2023](#)) as the parties were unable to reach agreement on the terms for the conduct of that project. Sparc remains very encouraged by the R&D and results achieved to date in this field and is actively assessing various options, including with potential partners in the agriculture and battery industries.

Corporate

Board Updates

In January 2024, Mr. Nick O'Loughlin assumed the position of Managing Director of Sparc Technologies, having previously been General Manager of Renewable Energy for the Company. Mr. Stephen Hunt, who has played an instrumental role in Sparc's leadership since its listing on the ASX in November 2020, has transitioned from Executive to Non-Executive Chairman, effective 31 March 2024. The Board acknowledges Mr. Hunt's invaluable contributions during his tenure as Executive Chairman and looks forward to his continued guidance in his new capacity.

Additionally, Mr. Adrien Wing has stepped down from his position as Non-Executive Director, also effective 31 March 2024. Mr. Wing, who joined the board in October 2023, will maintain his role as Company Secretary. The Board extends its appreciation to Mr. Wing for his ongoing commitment and contributions to the Company.

Following these changes during the quarter, the Sparc Technologies Board consists of Mr. Daniel Eddington as Non-Executive Director, with Mr. Nick O'Loughlin serving as Managing Director alongside Mr. Stephen Hunt in his new role as Non-Executive Chairman.

R&D Tax Refund

As reported in the December 2023 Quarterly Activities Report, Sparc received an R&D tax refund totalling A\$1.422 million as part of the Australian Government's R&D tax incentive relating to the 2023 financial year in January 2024.

Capital Raising

Subsequent to quarter end, the Company announced that it had received binding commitments from sophisticated and other professional investors to raise A\$2.25M (before costs) through a share placement (**Placement**). New and existing investors strongly supported the Placement, and Sparc's Directors subscribed for 454,545 shares in the Placement, totalling A\$100,000. The issuance of the shares to Directors is subject to shareholder approval, which will be sought during Q2 2024.

The Placement was conducted at an issue price of 22 cents per share (A\$0.22) with participants receiving 1 free attaching unlisted option for every 2 shares subscribed for under the Placement. The options are unlisted, have an exercise price of A\$0.35 and are exercisable on or before 29 April 2026.



Proceeds from the Placement will be used for:

- Supporting Sparc's investment in Sparc Hydrogen;
- Field trials and R&D programs to support product development and commercialisation efforts for **ecosparc**®;
- R&D for sodium-ion batteries and other projects; and
- General working capital.

Cash

As at 31 March 2024, the Company had a reported cash position of A\$1.43M.

Cash expenditure for the Quarter was in line with expectations and without any material movements from the previous Quarter.

As previously mentioned, post the end of the quarter Sparc raised A\$2.25M (before costs) in a placement which has strengthened the Company's cash position.

Related Party Payments

In line with its obligations under ASX Listing Rule 5.3.5, Sparc Technologies Limited notes that the only payments to related parties of the Company, as advised in Appendix 4C for the period ended 31 March 2024, pertain to payments to directors for reimbursement of arrears of Directors Fees, salary and superannuation in the amount of A\$130K.

-ENDS-

Authorised for release by: Nick O'Loughlin, Managing Director.

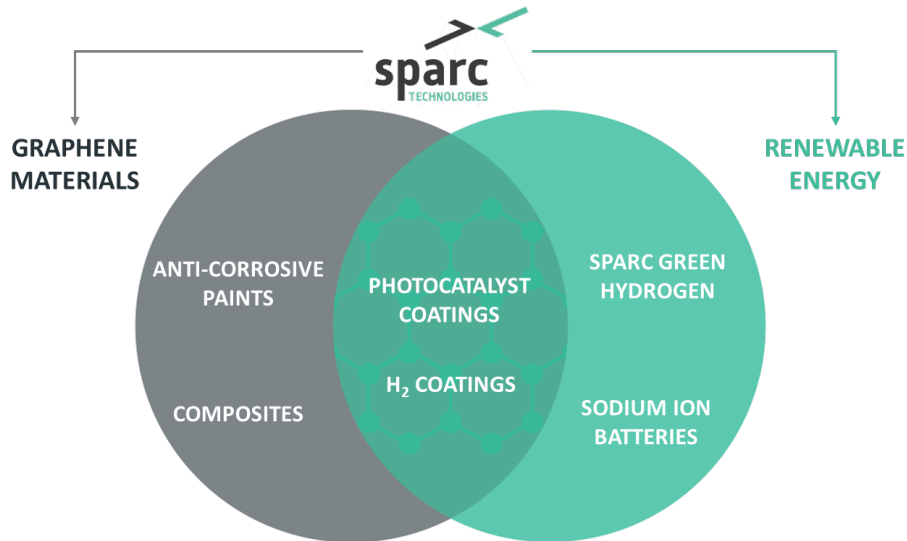
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About Sparc Technologies



Sparc Technologies Limited ('Sparc', ASX: SPN) is an Australian company pioneering new technologies to disrupt and transform industry while seeking to deliver a more sustainable world. Sparc has established offices in Australia, Europe and North America and is focused on three core areas of technology development.

1. Sparc has spent over 4 years developing a **graphene based additive** product, **ecosparc®**, which has demonstrated up to 40% anti-corrosion improvement in commercially available epoxy coatings. Sparc recently commissioned a manufacturing facility to produce **ecosparc®** and is engaging with global coatings companies and asset owners to conduct field trials.
2. Sparc is a majority shareholder of **Sparc Hydrogen** which is a company pioneering the development of **photocatalytic water splitting** ('PWS') green hydrogen production technology. PWS is an alternative to producing green hydrogen via electrolysis, using only sunlight, water and a photocatalyst. Given lower infrastructure requirements and energy use, the process has the potential to deliver a cost and flexibility advantage over electrolysis.
3. Sparc is also developing **sodium ion battery technology** in partnership with Queensland University of Technology.

For more information about Sparc Technologies please visit: sparctechnologies.com.au

For more information about **ecosparc®** please visit: ecosparc.com.au

For more information about Sparc Hydrogen please visit: sparchydrogen.com



Forward Looking Statements

Some information included in this release constitutes forward-looking statements. Forward-looking statements are statements that are not historical facts and are generally, but not always, identified by words such as the following: expects, plans, anticipates, forecasts, believes, intends, estimates, projects, assumes, potential and similar expressions. Forward-looking statements also include reference to events or conditions that will, would, may, could or should occur.

These forward-looking statements are necessarily based upon a number of estimates and assumptions that, while considered reasonable at the time they are made, are inherently subject to a variety of risks and uncertainties which could cause actual events or results to differ materially from those reflected in the forward-looking statements, including, without limitation the matters set out in this announcement.

Although the Company attempts and has attempted to identify factors that would cause actual actions, events or results to differ materially from those disclosed in forward looking statements, there may be other factors that could cause actual results, performance, achievements or events not to be as anticipated, estimated or intended, and many events are beyond the reasonable control of the Company. Accordingly, readers are cautioned not to place undue reliance on forward looking statements. Forward looking statements in these materials speak only at the date of issue. Subject to any continuing obligations under applicable law or any relevant stock exchange listing rules, in providing this information the Company does not undertake any obligation to publicly update or revise any of the forward-looking statements or to advise of any change in events, conditions or circumstances on which any such statement is based.



Appendix 4C

Quarterly cash flow report for entities subject to Listing Rule 4.7B

Name of entity

Sparc Technologies Limited

ABN

13 009 092 068

Quarter ended ("current quarter")

31 March 2024

Consolidated 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	0	0
1.2 Payments for		
research and development	(205)	(704)
product manufacturing and operating costs	(35)	(248)
advertising and marketing	(60)	(192)
leased assets	0	0
staff costs	(361)	(1077)
administration and corporate costs	(239)	(723)
1.3 Dividends received (see note 3)	0	0
1.4 Interest received	2	16
1.5 Interest and other costs of finance paid	0	0
1.6 Income taxes paid	0	0
1.7 Government grants and tax incentives	1,422	1,422
1.8 Other (provide details if material)	0	0
1.9 Net cash from / (used in) operating activities	523	(1,506)

2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
entities	0	0
businesses	0	0
property, plant and equipment	0	0
investments	0	0
intellectual property	0	0
other non-current assets	0	0



Consolidated statement of cash flows		Current quarter \$A'000	Year to date (9 months) \$A'000
2.2	Proceeds from disposal of:		
	entities	0	0
	businesses	0	0
	property, plant and equipment	0	(14)
	investments	0	(6)
	intellectual property	0	0
	other non-current assets	0	0
2.3	Cash flows from loans to other entities	0	0
2.4	Dividends received (see note 3)	0	0
2.5	Other (provide details if material)	0	0
2.6	Net cash from / (used in) investing activities	0	(20)

3.	Cash flows from financing activities		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	0	0
3.2	Proceeds from issue of convertible debt securities	0	0
3.3	Proceeds from exercise of options	0	0
3.4	Transaction costs related to issues of equity securities or convertible debt securities	0	0
3.5	Proceeds from borrowings	0	0
3.6	Repayment of borrowings	0	0
3.7	Transaction costs related to loans and borrowings	0	0
3.8	Dividends paid	0	0
3.9	Other (provide details if material)	0	0
3.10	Net cash from / (used in) financing activities	0	0

4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	908	2,957
4.2	Net cash from / (used in) operating activities (item 1.9 above)	523	(1,506)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	0	(20)
4.4	Net cash from / (used in) financing activities (item 3.10 above)		



Consolidated 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	1,431	1,431

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	1,431	908
5.2	Call deposits		
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)	1,431	908

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	129
6.2	Aggregate amount of payments to related parties and their associates included in item 2	
<i>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.</i>		

7.	Financing facilities <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>	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	0	0
7.5	Unused financing facilities available at quarter end		0
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.		



8.	Estimated cash available for future operating activities	\$A'000
8.1	Net cash from / (used in) operating activities (item 1.9)	523
8.2	Cash and cash equivalents at quarter end (item 4.6)	1,431
8.3	Unused finance facilities available at quarter end (item 7.5)	0
8.4	Total available funding (item 8.2 + item 8.3)	1,431
8.5	Estimated quarters of funding available (item 8.4 divided by item 8.1)	2.74
<p><i>Note: if the entity has reported positive net operating cash flows in item 1.9, answer item 8.5 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.5.</i></p>		
8.6	If item 8.5 is less than 2 quarters, please provide answers to the following questions:	
8.6.1	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?	
	<div style="border: 1px solid black; padding: 5px; min-height: 40px;"> Answer: </div>	
8.6.2	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?	
	<div style="border: 1px solid black; padding: 5px; min-height: 40px;"> Answer: </div>	
8.6.3	Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?	
	<div style="border: 1px solid black; padding: 5px; min-height: 40px;"> Answer: </div>	
<p><i>Note: where item 8.5 is less than 2 quarters, all of questions 8.6.1, 8.6.2 and 8.6.3 above must be answered.</i></p>		

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: 30 April 2024.....

Authorised by: ..The 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 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 standard applies 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.

