

27 January 2022

December Quarterly Activities Report

Advanced materials company First Graphene Limited (ASX: FGR, "First Graphene" or "the Company") is pleased to provide this update on its financial and operational performance for the quarter ended 31st December 2021.

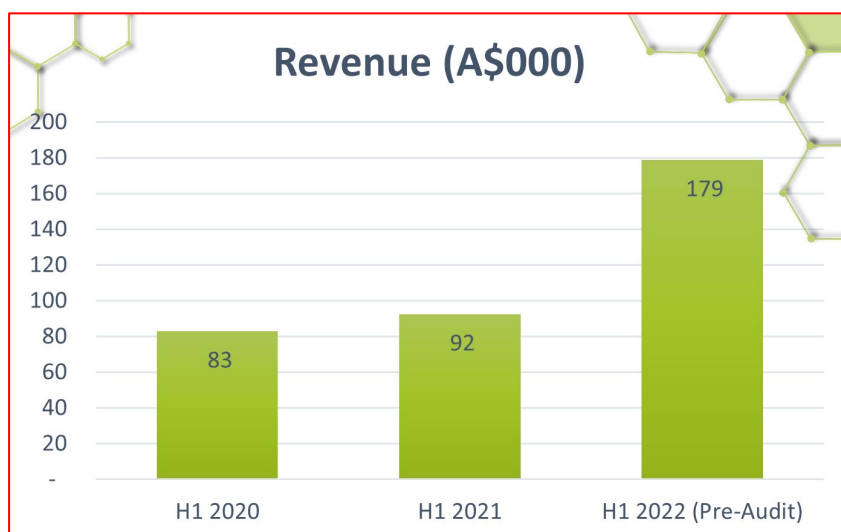
HIGHLIGHTS

- **Close to 100 per cent revenue growth compared to first half of FY21**
- **Foundation clients continue to drive commercial revenues coupled with increased development revenues**
- **Growing momentum in cement and concrete sectors on emission reduction opportunities with key industry partners**
- **Advances made in high-tech research and development programs**
- **Market maker strategy sets company on path to greater commercial success**

Commercial developments

Revenue growth continues

First Graphene is pleased to announce it has ended its second quarter of the 2022 financial year with an improvement in revenue compared to the previous December quarter. This modest growth completes a very strong first half of sales for the 2022 financial year, with a 94 per cent growth in revenue compared to the first half of the 2021 financial year. Continued growth and commercial momentum puts the Company in a strong position to achieve its FY 22 revenue targets.¹ The bulk of growth continues to come from early adopters – Aquatic Leisure, newGen Group and Steel Blue, but was also supplemented by new opportunities outlined below.



¹ Final numbers to be reported by the end of February 2022 following the H1 external audit

Major steps in coatings market

A commercial agreement with nanotechnology developer Protectology Ltd has led to the launch of a range of PureGRAPH®-enhanced conductive coatings, opening the way to the lucrative European coatings market.

Protectology is a UK-based specialist manufacturer of protective coatings for applications across multiple sectors include automotive and multi-media surface protection. The agreement is to grow its range of PureGRAPH®-enhanced coatings, which are marketed under the PROGRAPH® brand, and increase market share.

Coatings and inks account for a \$151 billion global market and the addition of a suitable graphene formulation is proven to enhance resistance against water, corrosion, abrasion and fire, while imparting increased flexibility and strength to the product.

Momentum in cement and concrete industries

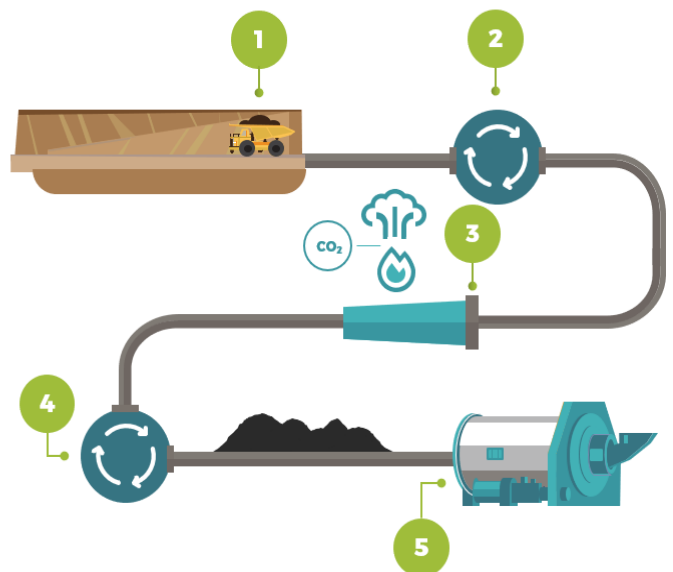
Addressing CO₂ emissions

Globally, the cement and concrete sectors are expected to account for a \$774 billion market by 2027, with more than 4.2 billion tonnes of cement produced in 2020 alone.

While successful incorporation of graphene into cement and concrete production offers significant mechanical performance improvements, First Graphene is focusing its work with industry partners on realising major reductions in carbon dioxide emissions. Cement production, and in particular clinker calcification, is responsible for up to 8 per cent of global CO₂ emissions, with 900kg of CO₂ produced for every tonne of cement manufactured.

Clinker and Cement production process – where do the CO₂ emissions come from?

1. Raw Material Extraction – calcium (is commonly a limestone quarry) silica, alumina & iron
2. Raw Meal Preparation – crushing, proportioning, & grinding
3. Rotary Kiln – calcination of the precalcined raw meal occurs, **generating CO₂ emissions** – for every tonne of clinker produced, 800-900kg of CO₂ is produced
4. Clinker – cooled and stored. **Clinker is the main ingredient used to produce Ordinary Portland Cement**
5. Final Grinding: clinker + gypsum + mineral addition = cement
Greener cements are made possible by adding PureGRAPH® graphene to this step



According to a UN Global Status Report from 2017, the global building sector is growing at unprecedented rates. Over the next 40 years, an expected 230 billion square metres of new construction will occur globally - the equivalent of Paris - to the planet every week.

PureGRAPH®-enhanced cement additives have been found to reduce emissions in cement production by between 16 and 22 per cent, providing the industry with a substantial boost in achieving a targeted 40 per cent reduction in carbon emissions by 2030.

The Company is working with a range of global cement manufacturers to develop PureGRAPH®-enhanced cement additives and grinding aids for use in cement production. Simultaneously, the Company is working with industry partners to develop a range of concrete admixtures to facilitate graphene incorporation into concrete production processes.

Cement patent filing

First Graphene has established a protected position for its PureGRAPH®-enhanced grinding aids and admixtures by filing a patent specification with the United Kingdom Intellectual Property Office. The filing describes a novel method for scaling up the production of graphene suspensions for use in cement additives and concrete admixtures.

Fosroc collaboration agreement

First Graphene has formed a collaboration agreement with global construction chemicals manufacturer Fosroc International Limited for the development of PureGRAPH® graphene-enhanced cement additives or grinding aids.

PureGRAPH®-enhanced cement additives will assist cement manufacturers to gain superior strength and improved physical properties, while improving grinding efficiency in the grinding phase of cement production. First Graphene's patented technology will assist enhancing green credentials of cement products.

Wollongong research update

Early results from a research program underway by the University of Wollongong show First Graphene's PureGRAPH® enhances the properties of mortar. The University of Wollongong's initial findings confirm the addition of small amounts of graphene enhances the compressive strength of concrete and mortar systems.

In addition, results have confirmed PureGRAPH® graphene products reduce the permeability of mortar and concrete systems whilst also improving resistance to sulphate-induced corrosion. The research shows promising signs for application in concrete infrastructure such as wastewater collection and treatment, and coastal ports.

According to a 2019 study, the global water and wastewater pipe market revenues are expected to see an incremental financial opportunity of over US\$18 billion over the next decade.

Technical developments focused on major markets

Supercapacitor materials development and testing continues

The Company has been awarded funding from Innovate UK EDGE to progress development work on its supercapacitor graphene hybrid materials with a Research and Technology Organisation (RTO) based in the United Kingdom. The Innovate EDGE fund supports high-growth small to medium enterprises to scale up and innovate, working alongside the UK's RTO and Catapult Network. The Company will engage world-leading experts at the Energy Innovation Centre based at Warwick Manufacturing Group (WMG) – part of the Catapult Network.

The £15,000 funding from Innovate UK will be matched with approximately AU\$100,000 in-kind funding from First Graphene's internal resources to advance the technology, which is an important milestone towards the commercialisation of the Company's supercapacitor technology. Funding will be used to progress development of novel supercapacitors using First Graphene's unique hybrid-graphene materials and optimised protic ionic liquid electrolytes.

Ongoing development has enabled First Graphene to establish a commercialisation roadmap and build relationships with development partners for further optimisation of supercapacitor devices, opening the way to a high-tech market predicted to reach revenues of US\$720 million by 2025.

Purchase of Kainos patents

In October 2021, First Graphene completed the acquisition of patents from UK-based Kainos Innovation Limited (Kainos). The acquired patents consist of two patent families filed in multiple global regions. Patents have already been fully granted by the US Patent Office for both families.

The part cash, part stock acquisition included an initial cash payment of £25,000 and a share allotment of 200,000 shares with a voluntary trading escrow for 12 months, and a milestone cash payment of £25,000 linked to the completion of patent grants.

Game Changers grant

First Graphene has secured funding for a 12-week development project to investigate the feasibility of enhancing long rubber gloves, or gauntlets, used in the nuclear decommissioning industry. The project, conducted through Sellafield Limited's Game Changers Programme, aims to develop needlestick and puncture-resistant gauntlets for operators at the United Kingdom's Sellafield Nuclear Site. Initial development work showed addition of PureGRAPH® in certain rubber systems could increase tear strength and puncture resistance.

First Graphene sees potential to expand applications for improved mechanical performance into the broader protective glove market, which had a global value of US\$12.37 billion in 2019 and is projected to reach \$35.2 billion by 2027.

AICIS variation

The Company successfully applied to the Australian Industrial Chemicals Introduction Scheme (AICIS) to vary the terms of the current assessment certificate (CERT8864) enabling several new products in the PureGRAPH® range to be covered under the existing assessment certificate. In addition, First Graphene applied to have additional end uses of products for textile coating and concrete assessed and included as part of the variation.

Foundation partners continue commercial rollout

Several of First Graphene's foundation customers are progressing the commercial rollout of graphene-enhanced products utilising PureGRAPH®.

Aquatic Leisure Technologies, owner of the Aqua Technics brand of fiberglass pools, launched its Graphene Nano-Tech process in the first half of 2021 and is now manufacturing every Aqua Technics pool using the technology. The company reports that its laminating process results in pools that are 30 per cent lighter and 30 per cent stronger, as well as highly resistant to water and chemicals. ALT reports it has produced more than 1500 PureGRAPH® - enhanced pools since the launch of the Graphene Nano-Tech range.

Safety footwear manufacturer **Steel Blue** launched its range of ultra-durable Southern Cross® GraphTEC™ safety boots in June 2021. The boots feature a PureGRAPH® enhanced scuff cap and outer sole, providing significantly enhanced strength, durability and wear resistance.

Wear protection and lining solution specialist **newGen Group** has expanded its ArmourGRAPH™ range of graphene-enhanced lining solutions for the mining, mineral processing and bulk materials handling industries. Field testing completed in 2021 showed that ArmourGRAPH™ bucket wear liners lasted more the six times longer than standard bucket liners. The company was also named a finalist for its ArmourGRAPH™ solutions in the global Mining Technology Excellence Awards for both the innovation and safety categories, and in the Australian Mining Prospect Awards for the innovative mining solution category.

'Market maker' strategy released

Following a comprehensive review of its go-to-market strategy (GTM), First Graphene prepared and commenced implementing an aggressive "market maker" strategy. This is a step-change approach in the graphene industry focused on proving the benefits of graphene-enhanced products across several different industries.

The Company achieves this by identifying partners for active downstream collaboration, investing and taking ownership of solutions to develop and commercialise products. Results are already being realised with opportunities progressing into trial phases with paid sales. The new approach is designed to supplement and supercharge the work done through First Graphene's Tier One partnership with the Graphene Engineering Innovation Centre (GEIC) in Manchester and other research partners, including Warwick, Wollongong, Manchester and Adelaide universities.

Other strategic updates

More collaboration, enhanced product lines

Aligned to the Company's growth strategy across select verticals, new products, including a masterbatch formulation for bitumen and asphalt applications, were launched during the quarter.

First Graphene also entered a collaboration agreement with High Density Polyethylene (HDPE) sheet extrusion specialist DSP Sdn Bhd. The collaboration is focused on the development of PureGRAPH®-enhanced HDPE sheet and welding wire to provide increased durability, abrasion resistance and fire retardancy of fabricated HDPE components.

To facilitate the development work, First Graphene is working closely with UK-based compounder Hubron International Ltd, a specialist masterbatch formulator, on the development of a new masterbatch tailored specifically for the HDPE grade used in the sheet extrusion process.

Following evaluation, the resulting PureGRAPH®-enhanced HDPE sheet/welding wire will be launched as a new product line and marketed by both DSP and First Graphene.

AGM

The Company used the 2021 AGM in November to outline its new market strategy and ongoing commercialisation process. Key areas covered included:

- Five downstream market segments and why First Graphene is focusing on them
- Anticipated growth in market segments
- Development of graphene applications
- Strengthened industry-specific commercial sales team
- Ongoing R&D investment to drive sales through proven science

AU\$3m share placement

In November, First Graphene received \$3 million as the second tranche of funds under a Share Placement Agreement with Speciality Materials Investments, LLC. The funding strengthens the Company's position and cash runway for the next two years.

COVID disruptions

The pandemic continues to impede customer activity, particularly in Europe, which is slowing several anticipated commercial and advanced trial developments. Travel constraints and supply chain disruptions have hindered several commercial opportunities that may have otherwise progressed faster in normal circumstances.

First Graphene is working with customers and partners to accommodate changing conditions and facilitate alternative arrangements wherever possible.

ASX ANNOUNCEMENT



Outlook for third quarter and beyond

First Graphene is seeing strong demand from new market segments and is gaining good traction across several opportunities with a number of results expected in the coming quarter. Some of these include:

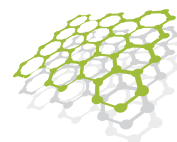
- **HDPE trials:** Laboratory testing with Malaysian-based DSP (M) Sdn Bhd to develop an optimised masterbatch showed significant benefits over standard HDPE products and production-scale trials are pending. Lab results showed 28 per cent increase in flexural strength and a 43 per cent increase in flexural modulus
- **HDPE antistatic/fire retardant mining components:** Initial testing has shown positive results and a specialised masterbatch has been developed for the next phase of testing
- **PET packaging application:** Promising results were returned in laboratory scale testing, will now move to larger scale evaluation to determine masterbatch feasibility
- **Thermally conductive polymer compounds:** Specific renewable energy applications are in the scale-up and supply chain sourcing phase with advanced widespread trials expected to commence soon
- **Cement and concrete industrial partners:** Several partners are moving to schedule larger scale trials for grinding aids and admixtures with a view to releasing products to market within 6–9 months
- **Waterproof and wear resistance coating for textiles:** The Company and its partners are moving towards large scale trials for a range of textile applications
- **Continued commercial success with our early adopting customers combined with new opportunities outlined above, gives First Graphene reason to expect a strong second half, which is on target to achieve an increase in sales over the 2021 financial year.**

ASX ANNOUNCEMENT

List of recent significant announcements

Date	Announcement title
9 Dec 2021	<u>FGR files patent for graphene use in cement production</u>
1 Dec 2021	<u>FGR develops PureGRAPH based Supercapacitor materials</u>
30 Nov 2021	<u>FGR receives A\$3m from previous Share Placement Agreement</u>
24 Nov 2021	<u>PureGRAPH enhanced conductive coating launched</u>
24 Nov 2021	<u>AGM Chairman's Address & CEO Presentation</u>
10 Nov 2021	<u>FGR signs collaboration agreement for HDPE enhancement</u>
3 Nov 2021	<u>New PureGRAPH Bitumen masterbatch formulation launched</u>
2 Nov 2021	<u>Jobkeeper notice</u>
1 Nov 2021	<u>FGR secures project to develop graphene enhanced gloves</u>
25 Oct 2021	<u>Annual Report to shareholders</u>
14 Oct 2021	<u>First Graphene's New Growth Strategy</u>
5 Oct 2021	<u>FGR acquires green hydrogen cavitation patents</u>

ASX ANNOUNCEMENT



first graphene

The world's leading graphene company

Investors

Michael Bell

Managing Director & CEO
First Graphene Limited
michael.bell@firstgraphene.net
+ 61 1300 660 448

Media

Simon Shepherdson

General Manager Media
Spoke Corporate
simon@spokecorporate.com
+ 61 413 809 404

About First Graphene Ltd (ASX: FGR)

First Graphene Ltd is the leading supplier of high-performing, graphene products. The company has a robust manufacturing platform based upon captive supply of high-purity raw materials and an established 100 tonne/year graphene production capacity. Commercial applications are now being progressed in composites, elastomers, fire retardancy, construction and energy storage.

First Graphene Ltd is publicly listed in Australia (ASX:FGR) and has a primary manufacturing base in Henderson, near Perth, WA. The company is incorporated in the UK as First Graphene (UK) Ltd and is a Tier 1 partner at the Graphene Engineering and Innovation Centre (GEIC), Manchester, UK.

PureGRAPH® Range of Products

PureGRAPH® graphene powders and PureGRAPH® AQUA pastes with lateral platelet sizes of 50µm, 20µm, 10µm and 5µm, as well as a range of PureGRAPH® Masterbatch and Admixture products are available in tonnage volumes. The products are high performing additives, characterised by their high quality and ease of use.

First Graphene Limited

ABN 50 007 870 760
1 Sepia Close
Henderson WA 6166
T: +61 1300 660 448
E: info@firstgraphene.net
W: firstgraphene.net

Directors:

Warwick Grigor
Dr Andy Goodwin
Michael Quinert
Michael Bell

Trading Symbols

Australia: FGR
Frankfurt: FSE:M11
USA OTCQB: FGPHF

With authority of the board, this announcement has been authorised for release by Aditya Asthana, Chief Financial Officer and Company Secretary.

Appendix 4C

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

Name of entity

First Graphene Limited

ABN

50 007 870 760

Quarter ended ("current quarter")

31 December 2021

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	77	172
1.2 Payments for		
(a) research and development	(390)	(884)
(b) product manufacturing and operating costs	(149)	(725)
(c) advertising and marketing	(175)	(236)
(d) leased assets	-	-
(e) staff costs	(477)	(954)
(f) administration and corporate costs	(239)	(593)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	0	1
1.5 Interest and other costs of finance paid	-	(5)
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	224
1.8 Other (provide details if material)	(49)	(86)
1.9 Net cash from / (used in) operating activities	(1,401)	(3,087)
2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	(16)	(41)

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (6 months) \$A'000
(d) investments	-	-
(e) intellectual property	(46)	(46)
(f) other non-current assets	-	-
2.2 Proceeds from disposal of:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	-	-
(d) investments	-	-
(e) intellectual property	-	-
(f) 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	(62)	(87)

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	(63)	1,617
3.4 Transaction costs related to issues of equity securities or convertible debt securities	-	-
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)	-	-
- reduction in lease liability	(89)	(89)
- Cash received from third parties	3,000	3,000
3.1 Net cash from / (used in) financing activities	2,849	4,529

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
4.	Net increase / (decrease) in cash and cash equivalents for the period		
4.1	Cash and cash equivalents at beginning of period	7,046	7,077
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(1,401)	(3,087)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(62)	(87)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	2,849	4,529
4.5	Effect of movement in exchange rates on cash held	0	0
4.6	Cash and cash equivalents at end of period	8,432	8,432

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	8,432	7,046
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)	8,432	7,046

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	175
6.2 Aggregate amount of payments to related parties and their associates included in item 2	-
<p><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></p> <p>Payment of executive Director salaries and consulting fees.</p>	

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	-	-
7.5 Unused financing facilities available at quarter end		
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)	(1,401)
8.2 Cash and cash equivalents at quarter end (item 4.6)	8,432
8.3 Unused finance facilities available at quarter end (item 7.5)	-
8.4 Total available funding (item 8.2 + item 8.3)	8,432
8.5 Estimated quarters of funding available (item 8.4 divided by item 8.1)	6.0
<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?

Answer: n/a

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?

Answer: n/a

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?

Answer: n/a

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.

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: 27th January 2022

Authorised by: With authority of the board, this announcement has been authorised for release, by

Aditya Asthana
Chief Financial Officer and Company Secretary

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.