

Archer Materials Limited
(ABN 64 123 993 233)



Financial Report

Half-year ended
31 December 2020

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About this Report

This report has been prepared for Archer stakeholders in line with statutory and regulatory obligations. It provides a summary of the Company's operations, performance and financial position as at and for the half year ended 31 December 2020.

All references to Archer, the Group, the Company, we, us, and our, refer to Archer Materials Ltd (ABN 64 123 993 233) and its subsidiaries. All dollar figures are in Australian currency unless otherwise stated. All references to half year refer to the six month period ending 31 December 2020.

This report should be read in conjunction with the Company's Annual Report for the year ended 30 June 2020, and any public announcements made by the Company during the half year ended 31 December 2020 and up to the date of this report.

Directors' Report

Your Directors present this report for the half year ended 31 December 2020.

Directors

The Directors of Archer during the half year and until the date of this report are as follows:

Gregory David English (Executive Chairman)

Alice McCleary (Non-Executive Director)

Kenneth Williams (Non-Executive Director) – appointed 28 September 2020

Paul Rix (Non-Executive Director) – resigned 30 October 2020

Principal activities

Archer is building and commercialising semiconductor devices including processor chips that are relevant to quantum computing and lab-on-a-chip biosensor technology.

During the half year, the principal activities of the Group were:

- Progressing its world-first technology development, including its ¹²CQ[®] quantum computing chip and A1 Biochip[™].
- Utilising world-class technology development infrastructure and facilities, R&D, people and IP, to support pre-market development.
- Protecting key intellectual property assets (e.g. patents and international patent applications) with global competitive advantages underpinning the Company's technology.
- Establishing and strengthening commercial partnerships advancing the Company's technology, including contributing to global networks coordinated by Tier 1 technology companies.
- Continuing to explore opportunities to add value for shareholders by the sale and divestment of the Company's historical mineral exploration tenements, which are not the current focus of Archer's ¹²CQ and A1 Biochip projects.

Dividends

There were no dividends paid, recommended or declared during the current or previous reporting period.

Consolidated results

During the half-year the Group incurred a loss of \$6,412,221 (2019: loss \$1,777,349).

The main reasons for the increase in the Group's loss during the half year were; the recognition of an impairment charge of \$4,948,249 to the Company's exploration assets (\$2019: Nil), and the loss associated with the fair value restatement of Archer's share investments in Volatus Capital Corp at period end (\$1,108,846). This was offset by a gain associated with the sale of the Leigh Creek Magnesia Project (\$1,244,299), plus a reduction in non-cash expense associated with recording the fair value of unlisted options issued during the respective six month reporting periods (31 December 2020: \$404,250 and 31 December 2019: \$997,000)

The Group's income from continuing operations during the half-year increased to \$1,250,881 (2019: \$132,686) due primarily to the profit on the sale of the company's Leigh Creek Magnesia Project, as detailed earlier.

Review of Operations

Archer is developing innovative deep tech for commercialisation in the multibillion-dollar global industries of quantum technology, human health, and reliable energy. The Company is rapidly progressing the development of its ¹²CQ[®] quantum computing qubit processor chip ("¹²CQ chip") and A1 Biochip[™] lab-on-a-chip technology ("A1 Biochip"), while continuing to identify opportunities to sell and divest its mineral exploration projects.

¹²CQ[®] quantum computing qubit processor chip

The Company commenced the development of the ¹²CQ chip in [Apr 2019](#). The ¹²CQ chip is a world-first technology that Archer is building for quantum computing operation at room-temperature and integration onboard modern electronic devices.

The patent family of international patent applications ("IPAs") associated to the ¹²CQ chip is currently in various stages prosecution procedures in a number of jurisdictions (Exhibit 1 & 2) ([ASX ann. 6 Oct 2020](#)).

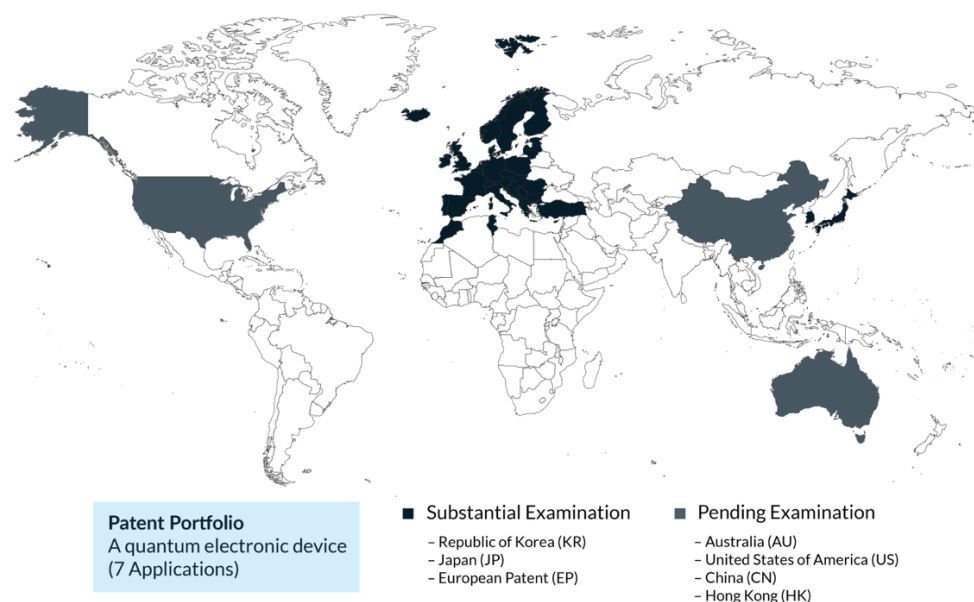


Exhibit 1. Map showing the geographic coverage of ¹²CQ chip IPAs as of Oct 2020. IPAs formally titled "A quantum electronic device". EP, JP, and KR IPAs entered substantial examination in [May](#), [June](#), and [Aug 2020](#) respectively. All IPAs have now been published and are pending examination.

Patents Pending		
Priority Date	Technology Summary	Stage & Coverage
3 Dec 2015	■ A quantum electronic device. Quantum electronic devices for processing qubits represented by an electron spin on a new type of carbon nanomaterial and methods for using this material in quantum computing.	National Phase. AU, US, KR, HK, CN, EP, JP
15 Feb 2019	■ Graphene complexes and compositions thereof. Complexes comprising graphene compositions, methods of synthesising these complexes and compositions, and the use of these complexes and compositions in biomolecular sensing.	International Phase. AU

Archer strategic themes
■ Quantum Technology ■ Human Health

Term of protection available would typically be 20+ years from the Priority Date.

Exhibit 2. Description of patent applications pending in various jurisdictions and the respective portfolio alignment to Archer's key strategic technology themes.

Rapid progress was made in the technological development of the ^{12}CQ chip by Archer during the half-year to meet significant milestones required for the early-stage validation of the successful operation and commercialisation of the semiconductor chip device.

Archer progressed its development towards its first major technological milestone in the operation of its ^{12}CQ chip (ASX Ann. [19 Nov 2021](#)) related to 'qubit control'. The successful completion of the control measurements would be major validation of the commercial viability of the ^{12}CQ chip.

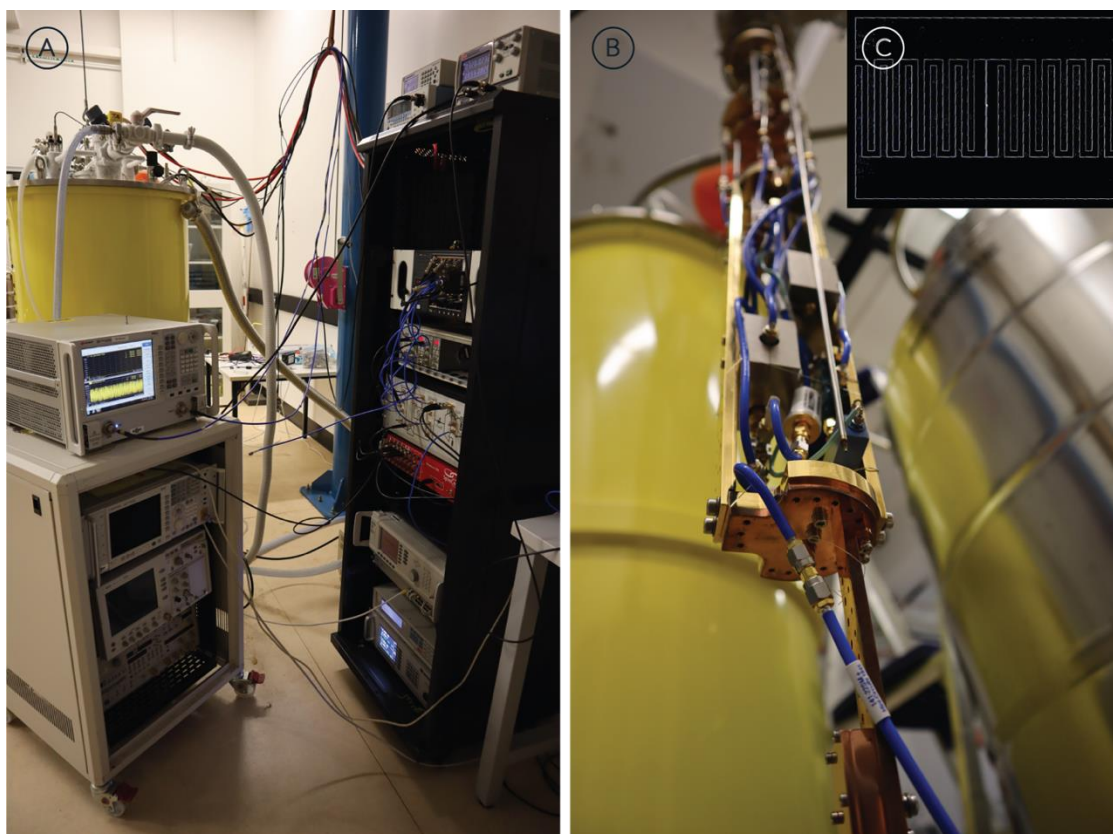


Image 1. Quantum measurement setup for qubit control. The state-of-the-art setup where the first quantum control measurements are being performed on Archer's ^{12}CQ qubit material. **A** The cryogenic chamber (yellow) together with quantum control instrumentation to perform the sophisticated quantum measurements. **B** The QC Devices (about half a millimetre in size, inset **C**) are mounted at the bottom of the cryogenic insert which is cooled to very low temperatures during the preliminary measurements. The setup and infrastructure shown here is worth over \$10 million.

Archer has now built a number of the qubit control devices ("QC Devices") required for ¹²CQ chip development. The Company has engineered and commenced operating the infrastructure and specialised equipment required to perform qubit control using various QC Device configurations (Image 1).

The Company has completed the preliminary stages of its quantum measurements towards qubit control by successfully characterising optimised and unoptimised QC Devices. The information obtained (e.g. device response to 'pulse sequences') will greatly expedite further progress in the ¹²CQ qubit control measurements.

Archer designs and builds its QC Devices in a world-class \$150 million semiconductor chip [prototyping foundry](#). The qubit control measurements are ongoing and are being performed in parallel to other technology development work packages which during the half-year have included theoretical modelling of the qubit system (ASX Ann. [12 Oct 2020](#)).

The Company announced for the first-time computational quantum mechanical theory was developed that accurately models the behaviour of the qubit material at the core of Archer's ¹²CQ chip (Image 2) (ASX Ann. [12 Oct 2020](#)).

The computational models validate the origins of experimentally observed quantum phenomena in the qubit material and allow the Company to predict future quantum behaviour. This achievement is fundamental to the successful development of the ¹²CQ chip.

There are very few people and institutions in the world that can do this type of work and the complexity and importance of this work to Archer's ¹²CQ chip technology development cannot be overstated, as the greatest amount of value creation in the quantum computing economy is generated from technology development.

The qubit material models were derived from first principles and to the highest scientific standards internationally in the field of theoretical condensed matter physics (*i.e.* not obtained using simple analytical formulas found in spreadsheets or similar analysis software).

The quantum information ("qubit") in Archer's chip design is in the form of an electron's quantum property of '*spin*', so it is critical to have developed accurate models predicting the electronic properties of the qubit material for the successful development of the ¹²CQ chip.

Archer during the half year continued to establish and strengthen its commercial partnerships, including contributing to the global [IBM Q Network](#), that Archer recently joined (ASX Ann. [May 5 2020](#)). The IBM Q Network is a community of Fortune 500 companies, academic institutions, start-ups and national research labs working with IBM to advance quantum computing.

Archer held a joint webinar with IBM (ASX Ann. [17 Aug 2020](#)) on the topic of quantum computing. Representatives from Archer and IBM discussed the development of quantum computing and its applications to an audience of over 320 attendees (ASX Ann. [16 Sept 2020](#)).

The Company was invited to the panel of speakers of an event held by the Australian Information Industry Association ("AIIA") event '[A Quantum Computing Tipping Point](#)'. The AIIA is Australia's peak representative body for the technology industry.

Following the AIIA event, the Company announced that it had entered into a collaboration with a leading Artificial Intelligence and Machine Learning company, [Max Kelsen](#) ("the Collaboration") (ASX Ann. [9 Dec 2020](#)). Archer and Max Kelsen are members of the global IBM Q Network^{Error! Bookmark not defined.}.

The collaboration is a critical step in the commercialisation of the ¹²CQ chip because the principal purpose of building quantum computing processors is to apply and run quantum algorithms to generate value from outperforming modern computing.

Archer and Max Kelsen will use IBM's Qiskit open source programming framework and cloud-based quantum computers to implement novel quantum algorithms developed that validate practical quantum computing applications relevant to Archer's ¹²CQ chip technology, *i.e.* *real* uses that would benefit from

quantum processors onboard technology at room temperature, such as Quantum Artificial Neural Networks.

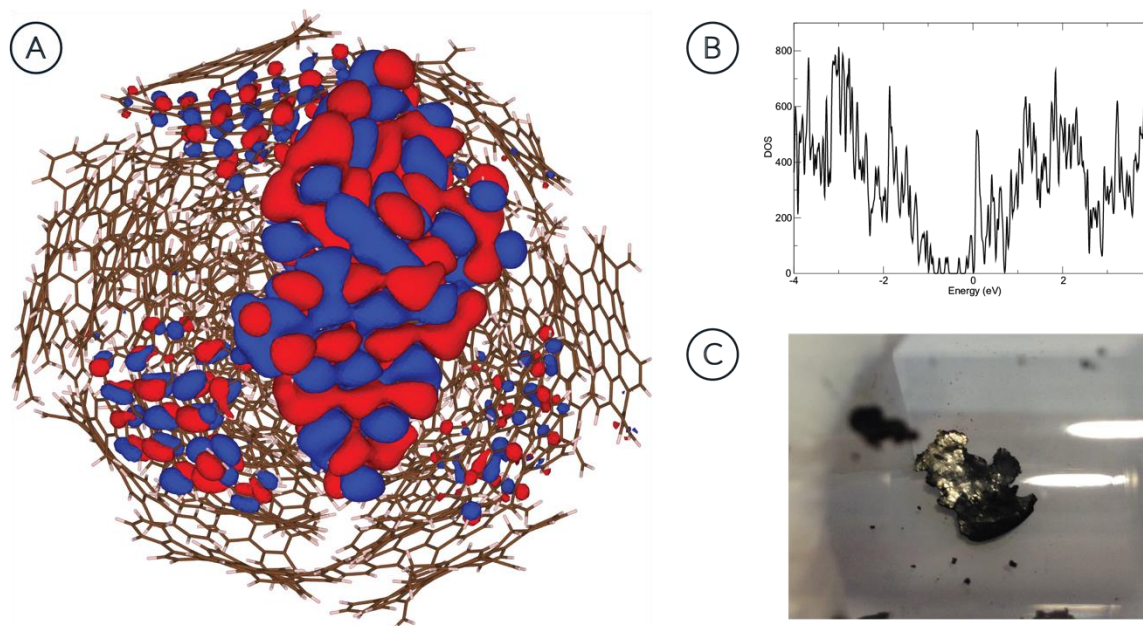


Image 2. The critical qubit material component in Archer's ¹²CQ chip technology. A Part of the computational model developed that accurately represents the atom-scale structure of the nanosized qubit material, used for calculating the qubit materials' electronic properties for the first time including in B the [density of states](#) (DOS) confirming the unique metallic-like character of the material which in C can be seen in reality in bulk quantities of qubit material having a metallic shimmer. Properties theoretically determined in A and B validate R&D underpinning Archer's ¹²CQ quantum computing technology¹.

A1 Biochip™ lab-on-a-chip biosensing technology

During the half-year, Archer made a step-change in advancing its graphene-based biosensor technology development to newly commence its lab-on-a-chip A1 Biochip™ development (ASX Ann. [5 Nov 2020](#)). This was possible in a short period of time as Archer brought its biotechnology development in-house and is now able to miniaturise its biosensing processes to chip-formats while retaining its IP (Image 3).

The A1 Biochip™ related patent application titled 'Graphene complexes and compositions thereof' filed under the Patent Cooperation Treaty ("PCT") is progressing in the International Phase in the patent granting procedure, which is the first of two main phases, the second being the [National Phase](#) (Exhibit 2).

Archer will be designing and building its own biochip which means that the Company no longer requires prototyping sensor materials, graphene inks, graphite, 2D/3D printing, or circuit boards (manufactured in Asia) (ASX Ann. [31 Aug 2020](#)). Developing the biochip in-house should allow Archer to accelerate commercialisation of the biochip.

Archer will work with its German Biotech partner to determine potential candidate biomolecules relevant to in-demand disease diagnostic tests, as part of the commercial development of Archer's A1 Biochip™ after renewing a Material Transfer Agreement (ASX Ann. [27 Sept 2018](#)).

Biochip development will involve designing these components for further miniaturisation (micron to nanoscale) and **are intended to incorporate graphene materials**; both aspects which are required to validate commercial advantages of ultra-sensitivity and device integration.

¹ <https://www.nature.com/articles/ncomms12232>

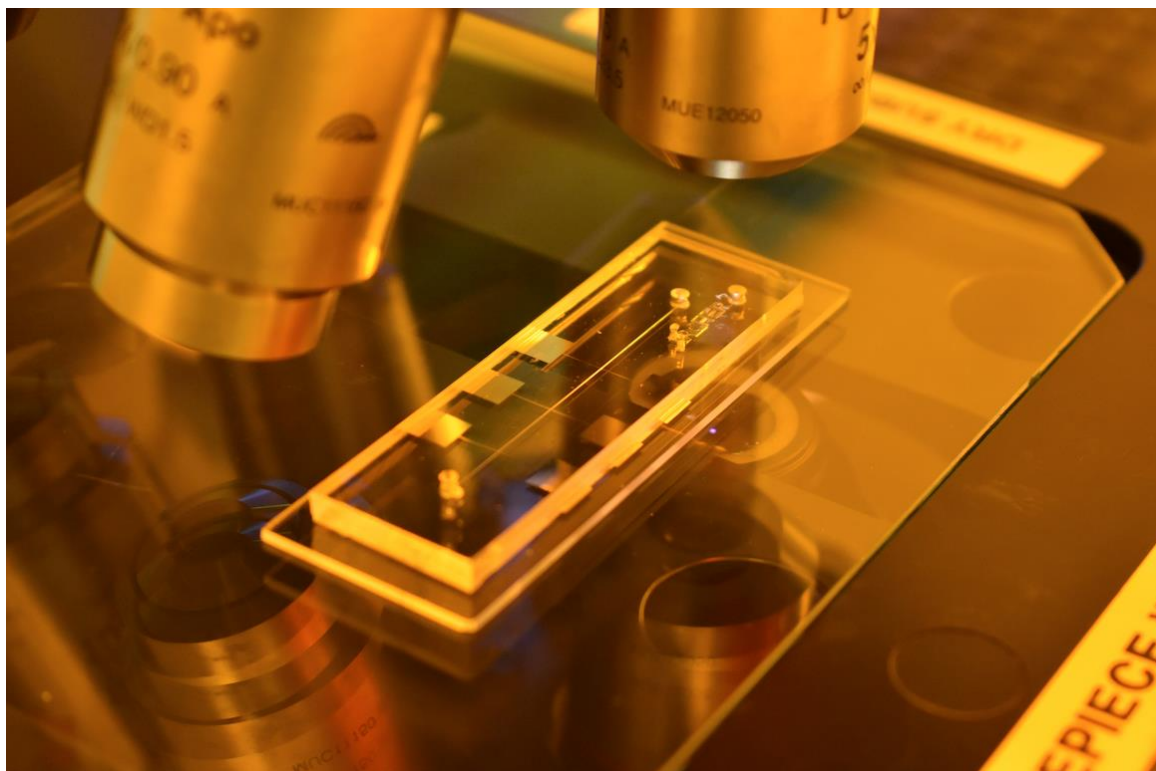


Image 3. Building Archer's A1 Biochip™. The first componentry is shown. Archer's biochip development involves miniaturising medical lab tests onto an integrated circuit, a single chip, that is only a few millimetres in size. The chip includes a number of functional areas and componentry, including microfluidic channels and active biosensing areas – all smaller than the thickness of a human hair.

Activity, divestment or otherwise sale of the Group's mineral tenements

The Company continues to explore opportunities to divest or otherwise commercialise its mineral tenements which are not the current focus of the Company's business operations.

During the half-year the Company signed a legally binding sale agreement ("Agreement") with private company Baudin Minerals Pty Ltd ("Buyer") for the sale of mineral exploration licences EL 5815 and EL 5920 ("Tenements") (ASX Ann. [22 Dec 2020](#)). Note 4 contains a detailed summary of the terms of the Agreement. The Company also successfully completed the sale of the Leigh Creek Magnesite Project. Note 9 contains a detailed summary of the completed sale.

Exploration activities during the half year led to the discovery of halloysite in the Company's prospect areas through laboratory based analyses (ASX Ann. [20 Jul 2020](#)), and the approval by the South Australian Government of the Program for Environment Protection and Rehabilitation ("PEPR") for the Campoona Graphite Project (ASX Ann. [16 Dec 2020](#)).

Changes in equity

The following changes in equity took place during the half-year period:

- 2,000,000 share options previously issued to a consultant were forfeited. The Options were exercisable at \$0.245 each with an expiry date of 31 March 2023 and subject to particular vesting conditions. The Options did not vest and were forfeited.
- 781,723 share options (exercise price of \$0.1929 and expiry date of 31 March 2023) were exercised into ordinary shares.
- 1,500,000 share options were issued to Director Kenneth Williams following shareholder approval at the Company's Annual General Meeting held on 30 November 2020. The share options are exercisable at \$0.7695 each and expire on 31 March 2024.

Significant changes to the state of affairs

The Directors are not aware of any significant changes in the state of affairs of the Group occurring during the half-year ended 31 December 2020, other than as disclosed in this half-year report.

Events subsequent to the end of reporting date

- The Company announced the granting of a Japanese patent ("JP Patent") associated to Archer's ¹²CQ quantum computing chip technology (ASX Ann. [20 Jan 2021](#)).

The JP Patent ([Patent No. 6809670](#)) is the first granted patent protecting the ¹²CQ chip. The grant of the JP Patent represents a significant commercial milestone in Archer's development of the ¹²CQ chip. The grant of the JP Patent gives Archer access to the high-value Japanese market for the ¹²CQ chip and is the first step in the Company's efforts to access global markets.

- The Company announced to shareholders (ASX Ann. [11 Jan 2021](#)) that the Office of the NSW Chief Scientist & Engineer had published a comprehensive [independent report](#), titled *Australian Semiconductor Sector Study: Capabilities, opportunities and challenges for NSW's meaningful participation in the global semiconductor value-chain*² ("Scoping Study"). Archer contributed to the development of the Scoping Study, together with other semiconductor sector leaders.

The Scoping Study identified the largest areas of opportunity for the scaleup of companies, such as Archer, in the global semiconductor industry. These areas include enhancing domestic capability in semiconductor design, fabrication and prototyping. In particular, as it relates to the commercial translation of advanced materials and quantum computing technology.

- The Company announced to shareholders (ASX Ann. [22 Feb 2021](#)) it had achieved electronic transport in a single qubit at room temperature, as part of its ¹²CQ quantum computing qubit processor chip ("¹²CQ chip") technology development. This achievement is fundamental to the successful development of the ¹²CQ chip.
- On 29 January 2021, 500,000 share options previously issued under the Company's employee incentive scheme (exercise price of \$0.1929 and expiry date of 31 March 2023) were exercised into ordinary shares.
- On 19 February 2021, 300,000 share options previously issued under the Company's employee incentive scheme (exercise price of \$0.1929 and expiry date of 31 March 2023) were exercised into ordinary shares.

Auditor's Declaration

The auditor's independence declaration as required under section 307C of the Corporations Act 2001 is set out on page 10 and forms part of the director's report for the financial half-year ended 31 December 2020.

This report is signed in accordance with a resolution of the Board of Directors.



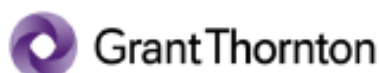
Greg English
Executive Chairman

Adelaide

Dated this 23rd day of February 2021

² <https://www.chiefscientist.nsw.gov.au/independent-reports/australian-semiconductor-sector-study>

Auditor's Independence Declaration



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Auditor's Independence Declaration

To the Directors of Archer Materials Limited

In accordance with the requirements of section 307C of the Corporations Act 2001, as lead auditor for the review of Archer Materials Limited for the half-year ended 31 December 2020, I declare that, to the best of my knowledge and belief, there have been:

- a no contraventions of the auditor independence requirements of the Corporations Act 2001 in relation to the review; and
- b no contraventions of any applicable code of professional conduct in relation to the review.

A stylized blue signature of "Grant Thornton" in a cursive font.

GRANT THORNTON AUDIT PTY LTD
Chartered Accountants

A blue ink signature of "J L Humphrey" in a cursive font.

J L Humphrey
Partner – Audit & Assurance

Adelaide, 23 February 2021

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Statement of Profit or Loss and Other Comprehensive Income

(For the half-year ended 31 December 2020)

	NOTES	CONSOLIDATED GROUP	
		31 December 2020 \$	31 December 2019 \$
INCOME			
Income	2	1,250,881	132,686
EXPENSES			
Depreciation expense		(16,178)	(12,637)
Amortisation of intangibles		(2,085)	(4,037)
Fair value loss on financial assets	10	(1,108,846)	-
Employee benefits expense		(877,948)	(1,389,144)
Advanced Materials research and development expenditure		(381,495)	(157,257)
ASX listing and share registry expense		(107,707)	(89,869)
Consulting/Public Relations/Legal expense		(57,312)	(86,829)
Occupancy expense		(23,757)	(40,725)
Impairment of exploration assets		(4,948,249)	-
Exploration expenditure expensed		(37,373)	(3,173)
Other expenses		(102,152)	(125,977)
LOSS BEFORE INCOME TAX EXPENSE		(6,412,221)	(1,776,962)
Income tax benefit		-	-
LOSS FOR THE PERIOD FROM CONTINUING OPERATIONS		(6,412,221)	(1,776,962)
DISCONTINUED OPERATIONS			
Loss after income tax for the period from discontinued operations.		-	(387)
LOSS ATTRIBUTED TO MEMBERS OF THE PARENT ENTITY		(6,412,221)	(1,777,349)
Other comprehensive income		-	-
TOTAL COMPREHENSIVE INCOME ATTRIBUTABLE TO MEMBERS OF THE PARENT ENTITY		(6,412,221)	(1,777,349)
EARNINGS PER SHARE		Cents	Cents
Basic and diluted loss per share		(2.83)	(0.89)
EARNINGS PER SHARE FOR CONTINUING OPERATIONS			
Basic and diluted loss per share		(2.83)	(0.89)

The accompanying notes form part of the financial statements.

Statement of Financial Position

(As at 31 December 2020)

	NOTES	CONSOLIDATED GROUP	
		31 December 2020 \$	30 June 2020 \$
ASSETS			
CURRENT ASSETS			
Cash and cash equivalents		6,931,514	8,114,682
Prepayments		46,819	20,283
Trade and other receivables		32,208	324,731
Investments	10	1,530,286	-
		<u>8,540,827</u>	<u>8,459,696</u>
Non-current assets classified as held for sale	4	316,424	-
Assets of disposal groups classified as held for sale	9	-	1,580,235
Total current assets		<u>8,857,251</u>	<u>10,039,931</u>
NON-CURRENT ASSETS			
Property, plant and equipment		66,532	59,563
Exploration and evaluation expenditure	3	10,000,000	15,069,074
Intangible assets		109,170	89,987
Total non-current assets		<u>10,175,702</u>	<u>15,218,624</u>
TOTAL ASSETS		<u>19,032,953</u>	<u>25,258,555</u>
CURRENT LIABILITIES			
Trade and other payables		143,482	207,991
Deposit received in advance for the sale of assets		50,000	-
Deposit received in advance for the sale of the Leigh Creek Magnesite Project		-	250,000
Employee entitlements		102,649	217,629
		<u>296,131</u>	<u>675,620</u>
Liabilities of disposal groups classified as held for sale		-	267
Total current liabilities		<u>296,131</u>	<u>675,887</u>
NON-CURRENT LIABILITIES			
Employee entitlements		53,301	41,970
Total non-current liabilities		<u>53,301</u>	<u>41,970</u>
TOTAL LIABILITIES		<u>349,432</u>	<u>717,857</u>
NET ASSETS		<u>18,683,521</u>	<u>24,540,698</u>
EQUITY			
Issued capital	5	32,636,044	32,485,250
Reserves		1,641,250	1,237,000
Retained losses		(15,593,773)	(9,181,552)
TOTAL EQUITY		<u>18,683,521</u>	<u>24,540,698</u>

The accompanying notes form part of the financial statements.

Statement of Changes in Equity

(For the half-year ended 31 December 2020)

	Issued Capital \$	Retained Earnings \$	Share Based Payments Reserve \$	Acquisition Reserve \$	Total \$
BALANCE AT 1 JULY 2019	23,873,093	(6,389,360)	24,698	240,000	17,748,431
Shares issued during the period (net of costs)	1,992,600	-	-	-	1,992,600
Fair value of unlisted options issued during the period – note 6	-	-	997,000	-	997,000
Transfer of forfeited options to retained earnings	-	24,698	(24,698)	-	-
Transactions with owners	25,865,693	(6,364,662)	997,000	240,000	20,738,031
Total comprehensive loss for the period	-	(1,777,349)	-	-	(1,777,349)
BALANCE AT 31 DECEMBER 2019	25,865,693	(8,142,011)	997,000	240,000	18,960,682
	Issued Capital \$	Retained Earnings \$	Share Based Payments Reserve \$	Acquisition Reserve \$	Total \$
BALANCE AT 1 JULY 2020	32,485,250	(9,181,552)	997,000	240,000	24,540,698
Shares issued during the period (net of costs)	150,794	-	-	-	150,794
Fair value of unlisted options issued during the period. – note 6	-	-	404,250	-	404,250
Transactions with owners	32,636,044	(9,181,552)	1,401,250	240,000	25,095,742
Total comprehensive loss for the period	-	(6,412,221)	-	-	(6,412,221)
BALANCE AT 31 DECEMBER 2020	32,636,044	(15,593,773)	1,401,250	240,000	18,683,521

The accompanying notes form part of the financial statements.

Statement of Cash Flows

(For the half-year ended 31 December 2020)

		CONSOLIDATED GROUP	
		31 December	31 December
		2020	2019
		\$	\$
CASH FLOW FROM OPERATING ACTIVITIES			
Payments to suppliers and employees		(1,043,479)	(783,119)
Payments for Advanced Materials research and development related expenditure		(381,495)	(157,257)
Interest received		9,628	2,401
Research & development tax concession		238,859	102,421
Commonwealth Government COVID Stimulus		50,000	-
NET CASH (USED IN) OPERATING ACTIVITIES	11 (a)	(1,126,487)	(835,554)
CASH FLOWS FROM INVESTING ACTIVITIES			
Payments for exploration expenditure		(213,061)	(456,238)
Payment for plant and equipment		(23,146)	(3,655)
Receipt from sale of land and buildings		-	1,350,000
Payments for intellectual property		(21,268)	-
Deposit received for the sale of non-current assets		50,000	-
NET CASH (USED IN) / PROVIDED BY INVESTING ACTIVITIES		(207,475)	890,107
CASH FLOWS FROM FINANCING ACTIVITIES			
Proceeds from issue of shares		150,794	1,992,600
NET CASH PROVIDED BY FINANCING ACTIVITIES		150,794	1,992,600
Net increase / (decrease) in cash held		(1,183,168)	2,047,153
Cash at beginning of period		8,114,682	695,749
CASH AT THE END OF THE PERIOD		6,931,514	2,742,902

The accompanying notes form part of the financial statements.

Notes to the Financial Statements

(For the half-year ended 31 December 2020)

NOTE 1 – STATEMENT OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Preparation

These general purpose interim financial statements for the half-year reporting period ended 31 December 2020 have been prepared in accordance with the requirements of the *Corporations Act 2001* and Australian Accounting Standards including AASB 134: Interim Financial Reporting. Compliance with Australian Accounting Standards ensures that the financial statements and notes also comply with International Financial Reporting Standards.

This interim financial report is intended to provide users with an update on the latest annual financial statements of Archer Materials Limited and its controlled entities (the Group). As such, it does not contain information that represents relatively insignificant changes occurring during the half-year within the Group. It is therefore recommended that this financial report be read in conjunction with the annual financial statements of the Group for the year ended 30 June 2020, together with any public announcements made during the half-year.

Significant Accounting Policies

The interim financial statements have been prepared in accordance with the same accounting policies adopted in the Group's last annual financial statements for the year ended 30 June 2020 unless otherwise stated.

New or amended Accounting Standards and Interpretations adopted

The consolidated entity has adopted all of the new or amended Accounting Standards and Interpretations issued by the Australian Accounting Standards Board ('AASB') that are mandatory for the current reporting period.

Any new or amended Accounting Standards or Interpretations that are not yet mandatory have not been early adopted.

NOTE 2 – INCOME	CONSOLIDATED GROUP	
	6 months to 31 December 2020	6 months to 31 December 2019
	\$	\$
Interest income	6,582	2,102
Gain on the sale of the Leigh Creek Magnesite Project ¹	1,244,299	-
Gain on sale of Sugarloaf Land	-	130,584
TOTAL INCOME	1,250,881	132,686

¹ refer to Note 9.

	CONSOLIDATED GROUP	
NOTE 3 – EXPLORATION AND EVALUATION EXPENDITURE	31 December 2020	30 June 2020
	\$	\$
Balance at the beginning of the period	15,069,074	14,500,289
Amounts capitalised during the period	195,599	943,106
Impairment expense during the period	(4,948,249)	(350,609)
Transferred to assets held for sale	(316,424)	(23,712)
Balance at the end of the period	10,000,000	15,069,074

An impairment charge of \$4,948,249 was recognised during the period to reflect the directors' assessment of the recoverable amount of the Company's exploration and evaluation assets. The impairment charge for the prior period ended 31 December 2019 related to relinquishment of tenements to which expenditure had been previously capitalised.

NOTE 4 – NON-CURRENT ASSETS HELD FOR SALE

During the half-year the Company signed a legally binding sale agreement ("Agreement") with private company Baudin Minerals Pty Ltd ("Buyer") for the sale of mineral exploration licences EL 5815 and EL 5920 ("Tenements") (ASX Ann. [22 Dec 2020](#)).

Agreement key terms

The purchase price payable to Archer is \$2.0 million ("Base Payment") plus a Bonus. The Buyer must pay a \$50,000 non-refundable deposit (Deposit) at the signing of the Agreement and a further non-refundable \$100,000 ("Additional Deposit") if the Buyer elects to proceed after the end of the due diligence period.

The Deposit, Additional Deposit and Extension Payments (if any) all form part of the Base Payment, the balance of which may be satisfied in cash or shares in the relevant listed entity (or a combination of both) at the election of the Buyer.

The Bonus amount is an additional payment calculated as 5.0% of the enterprise value of the listed entity. Archer is to be granted a 2% Net Smelter Return royalty on the value of all minerals (excluding graphite) extracted from the Tenements. Also, the Company retains the right to explore for, and if warranted, mine graphite on the area of the Tenements.

Completion of the sale and purchase of the Tenements ("Completion") is conditional upon: the Buyer conducting due diligence by 15 March 2021 and the results of those enquiries being to the satisfaction of the Buyer; South Australian Government approval to the sale of the Tenements; and the Buyer listing on a stock exchange.

Completion will take place on 30 June 2021 or such other date agreed by Archer and the Buyer. The date for Completion may be extended by Buyer for three months at a time (up to 31 December 2021) by paying to Archer \$100,000 per extension (up to a total of \$200,000) ("Extension Payments").

	31 December 2020	30 June 2020
	\$	\$
Capitalised exploration expenditure – classified as held for sale	316,424	-

NOTE 5 – ISSUED CAPITAL

31 DECEMBER 2020	Number of shares	31 December 2020
		\$
(a) issued and paid up capital		
Fully paid ordinary shares	225,136,546	32,636,044
(a) Movements in fully paid shares		
Balance as at 1 July 2020	224,354,823	32,485,250
Shares issued - exercise of options (18 September 2020)	300,000	57,870
Shares issued - exercise of options (16 October 2020)	181,723	35,054
Shares issued - exercise of options (11 December 2020)	300,000	57,870
Balance as at 31 December 2020	225,136,546	32,636,044
30 JUNE 2020		
	Number of shares	30 June 2020
		\$
(a) issued and paid up capital		
Fully paid ordinary shares	224,354,823	32,485,250
(a) Movements in fully paid shares		
Balance as at 1 July 2019	196,304,283	23,873,093
Shares issued - vested performance Rights (8 July 2019)	787,500	-
Shares issued - Share Purchase Plan (13 December 2019)	15,327,790	1,992,600
Shares issued - exercise of options (12 May 2020)	100,000	19,290
Shares issued exercise of options (18 May 2020)	830,000	160,107
Shares issued - exercise of options (26 June 2020)	400,000	77,160
Shares issued - Share Purchase Plan (30 June 2020)	10,605,250	6,363,000
Balance as at 30 June 2020	224,354,823	32,485,250

NOTE 6 – SHARE BASED PAYMENTS

a) Performance Rights	31 December 2020	30 June 2020
	Number of Performance Rights	Number of Performance Rights
Balance at the beginning of the period	-	1,050,000
Granted during the period	-	-
Vested during the period	-	(787,500)
Forfeited during the period	-	(262,500)
Balance at the end of the period	-	-

No Performance Rights (Rights) were granted during the period. No expense has been included in the Statement of Profit or Loss and Other Comprehensive Income under employee benefits expense for the half year ended 31 December 2020 (31 December 2019: Nil).

a) Unlisted Options

Options and weighted average exercise prices are as follows for the reporting period presented:

	Number of Options	Weighted average exercise price per Option (\$)
Outstanding at 1 July 2019	-	-
Granted	17,500,000	0.1929
Exercised	-	-
Forfeited	-	-
Outstanding at 31 December 2019	17,500,000	0.1929
Outstanding at 1 July 2020	18,170,000	0.1929
Granted	1,500,000	0.7595
Exercised	(781,723)	0.1929
Forfeited	(2,000,000)	0.245
Outstanding at 31 December 2020	16,888,277	0.2441

Weighted average remaining contractual life of Options at 31 December 2020 is 2.25 years (31 December 2019: 3.25 years)

Six months to 31 December 2020

Options issued during the period

On 30 November 2020, 1,500,000 unlisted options to acquire fully paid ordinary shares in the Company (Options) were issued to Director Kenneth Williams following shareholder approval at the Company's Annual General Meeting held on 30 November 2020 (2020 AGM). Options were granted at no cost to the recipient and vest immediately upon issue.

Options were granted pursuant to the Company's Performance Rights and Share Option Plan, which was approved by shareholders at the Annual General Meeting held on 30 October 2019.

The details of the Options granted are as follows:

Recipient	Grant Date	Issue Date	No. of Options	Exercise Price	Expiry Date
Director	30 Nov 20	30 Nov 20	1,500,000	\$0.7695	31 Mar 24

The fair value of the Options issued was calculated by using a Black-Scholes option pricing model and was estimated on the date of the grant using the following assumptions:

	Director Options
Share price at date of grant (\$)	0.53
Historic volatility (%)	89.6
Risk free interest rate (%)	0.11
Expected life of Options (days)	1217

Historical volatility has been the basis for determining expected share price volatility as it is assumed that this is indicative of future tender, which may not eventuate.

The life of the Options is based on the historical exercise patterns, which may not eventuate in the future.

As the Options do not require the satisfaction of vesting conditions, these options vest immediately and an amount of \$404,250 has been included in the Statement of Profit or Loss and Other Comprehensive Income under employee benefits expense for the half-year ended 31 December 2020.

Options exercised during the Period

During the six month period to 31 December 2020, 781,723 Options (exercise price of \$0.1929 and expiry date of 31 March 2023) were exercised into shares.

Options forfeited during the Period

During the six month period to 31 December 2020, 2,000,000 Options previously issued to a consultant who was assisting in the development of the Company's halloysite-kaolin projects, were forfeited. The Options were exercisable at \$0.245 each end expiry date of 31 March 2023, and subject to particular vesting conditions. The Options did not vest and were forfeited in accordance with the terms on which they were issued.

Six months to 31 December 2019

Options issued during the period

On 12 November 2019, 17,500,000 unlisted options to acquire fully paid ordinary shares in the Company (Options) were issued to Directors and employees of Archer following shareholder approval at the Company's Annual General Meeting held on 30 October 2019 (2019 AGM). Options were granted at no cost to the recipients and vest immediately upon issue.

Options were granted pursuant to the Company's Performance Rights and Share Option Plan, which was approved by shareholders at the 2019 AGM.

The details of the Options granted are as follows:

Recipient	Grant Date	Issue Date	No. of Options	Exercise Price	Expiry Date
Directors & CEO	30 Oct 19 ¹	12 Nov 19	11,500,000	\$0.1929	31 Mar 23
Other Employees	12 Nov 19	12 Nov 19	6,000,000	\$0.1929	31 Mar 23

¹ In accordance with Australian Accounting Standard AASB 2, the deemed grant date for the Options issued to Directors and CEO was the date the Company received shareholder approval, being 30 October 2019. All Options issued to other employees have a grant date equal to the issue date, being 12 November 2019.

The fair value of the Options issued was calculated by using a Black-Scholes option pricing model and was estimated on the date of the grant using the following assumptions:

	Directors and CEO Options	Other Employees Options
Share price at date of grant (\$)	0.135	0.125
Historic volatility (%)	77.2	75.7
Risk free interest rate (%)	0.78	0.84
Expected life of Options (days)	1235	1235

Historical volatility has been the basis for determining expected share price volatility as it is assumed that this is indicative of future tender, which may not eventuate.

The life of the Options is based on the historical exercise patterns, which may not eventuate in the future.

As the options do not require the satisfaction of vesting conditions, these options vest immediately and an amount of \$997,000 has been included in the Statement of Profit or Loss and Other Comprehensive Income under employee benefits expense for the half-year ended 31 December 2019.

Options outstanding at 31 December 2019 have a weighted average exercisable price of \$0.1929 each and a weighted average remaining contractual life of 3.25 years.

Options exercised during the Period

No options were exercised during the six month period to 31 December 2019.

Options forfeited during the Period

No options were forfeited during the six month period to 31 December 2019.

NOTE 7 - OPERATING SEGMENTS

The Directors have considered the requirements of AASB 8 - Operating segments and the internal reports that are reviewed by the chief operating decision maker (the Board) in allocating resources have concluded at this time there are no separately identifiable segments. The Group operates in one segment being materials technology research and development and mineral exploration which are highly integrated.

NOTE 8 - CONTINGENT ASSETS, LIABILITIES & COMMITMENTS

The Company has no contingent assets, liabilities or commitments as at 31 December 2020 (31 December 2019: Nil).

The Group has minimum expenditure commitments on exploration licences as per the terms of the exploration licences. Unexpended commitment for a particular year can be deferred or rolled over to subsequent years of the licence term.

NOTE 9 – ASSETS AND DISPOSAL GROUPS CLASSIFIED AS HELD FOR SALE AND DISCONTINUED OPERATIONS

SALE OF THE LEIGH CREEK MAGNESIA PROJECT

On 14 August 2020, the Company announced the Completion of the sale of the Leigh Creek Magnesia Project (“Project”). At Completion the Company received 6,535,775 shares (“Consideration Shares”) in Canadian Stock Exchange listed Volatus Capital Corp. (“Volatus”). The Consideration Shares have a value of \$2.64 million⁽¹⁾ and can be traded for the first time only after four months have elapsed from the date of distribution.

Archer has received \$2.89⁽¹⁾ million for the Project, comprising:

- \$250,000 cash already received; plus
- \$2.0 million of Volatus shares at Completion; plus
- Bonus payment of \$639,133 of Volatus shares at Completion.

Archer may be entitled to receive a further bonus payment should there be a future transaction with the other company that purchased the remainder of the Project.

⁽¹⁾ Assumes Volatus share price of A\$0.40, AUD:CDN exchange rate of \$0.9584 and 6,535,775 Consideration Shares issued to Archer.

Carrying amounts of net assets over which control was lost	Total
	\$
Assets	
Held for sale assets	1,580,817
	<u>1,580,817</u>
Liabilities	-
	<u>1,580,817</u>
Net assets derecognised	<u>1,580,817</u>
Consideration received:	
Cash received	250,000
Fair value of equity received in Volatus	2,639,132
Total consideration received	<u>2,889,132</u>
Gain on disposal group classified as held for sale assets	1,244,299

NOTE 10 – INVESTMENTS

	31 December 2020 \$	30 June 2020 \$
Listed ordinary shares - designated at fair value through profit or loss	1,530,286	-
	<u>1,530,286</u>	<u>-</u>
<i>Reconciliation</i>		
Reconciliation of the fair values at the beginning and end of the current and previous financial year are set out below:		
Opening fair value	-	-
Additions – consideration received	2,639,132	-
Revaluation decrements	(1,108,846)	-
Closing fair value	<u>1,530,286</u>	<u>-</u>

Financial assets at fair value through profit or loss

Financial assets not measured at amortised cost or at fair value through other comprehensive income are classified as financial assets at fair value through profit or loss. Typically, such financial assets will be either: (i) held for trading, where they are acquired for the purpose of selling in the short-term with an intention of making a profit, or a derivative; or (ii) designated as such upon initial recognition where permitted. Fair value movements are recognised in profit or loss.

NOTE 11 – CASH FLOW INFORMATION

a) Reconciliation of cash flows from operations with Loss after Income Tax	31 December 2020 \$	31 December 2019 \$
Loss after income tax	(6,412,221)	(1,777,349)
Depreciation (net of capitalised depreciation)	16,178	12,637
Amortisation of intangibles	2,085	4,037
Fair Value loss on investment in Volatus shares	1,108,846	-
Gain on sale of the Leigh Creek Magnesite Project	(1,244,299)	-
Gain on sale of Sugarloaf Land	-	(130,584)
Share based payment - to employees	404,250	977,000
Exploration expenditure expensed	37,373	3,173
Impairment of exploration assets	4,948,249	-
Changes in assets and liabilities:		
- Decrease in trade and other receivables	265,987	143,972
- Decrease in trade and other payables	(149,286)	(48,417)
- Decrease in employee entitlements	(103,649)	(40,023)
Net cash used in operating activities	<u>(1,126,487)</u>	<u>(835,554)</u>

NOTE 12 – EVENTS SUBSEQUENT TO REPORTING DATE

The following events have occurred since reporting date

- The Company announced the granting of a Japanese patent (“JP Patent”) associated to Archer’s ¹²CQ quantum computing chip technology (ASX Ann. [20 Jan 2021](#)) with Patent No. 6809670 and is the first granted patent protecting the ¹²CQ chip.
- The Company announced to shareholders (ASX Ann. [22 Feb 2021](#)) it had achieved electronic transport in a single qubit at room temperature, as part of its ¹²CQ quantum computing qubit processor chip (“¹²CQ chip”) technology development. This achievement is fundamental to the successful development of the ¹²CQ chip.
- On 29 January 2021, 500,000 share options previously issued under the Company’s employee incentive scheme (exercise price of \$0.1929 and expiry date of 31 March 2023) were exercised into ordinary shares.
- On 19 February 2021, 300,000 share options previously issued under the Company’s employee incentive scheme (exercise price of \$0.1929 and expiry date of 31 March 2023) were exercised into ordinary shares.

Directors' Declaration

The Directors of the Company declare that:

1. The Financial Statements and Notes, as set out on pages 11 to 23 are in accordance with the *Corporations Act 2001*, including:
 - a) complying with Accounting Standard AASB 134 Interim Financial Reporting, and
 - b) giving a true and fair view of the consolidated entity's financial position as at 31 December 2020 and of its performance for the half-year ended on that date.
2. In the Director's opinion there are reasonable grounds to believe that the Company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors.

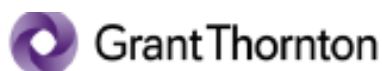


Greg English
Executive Chairman

Adelaide

Dated this 23rd day of February 2021

Independent Auditor's Review Report



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Independent Auditor's Report

To the Members of Archer Materials Limited

Report on the review of the half year financial report

Conclusion

We have reviewed the accompanying half year financial report of Archer Materials Limited (the Company) and its subsidiaries (the Group), which comprises the consolidated statement of financial position as at 31 December 2020, and the consolidated statement of profit or loss and other comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the half year ended on that date, a description of accounting policies, other selected explanatory notes, and the directors' declaration.

Based on our review, which is not an audit, nothing has come to our attention that causes us to believe that the half year financial report of the Archer Materials Limited does not give a true and fair view of the financial position of the Company as at 31 December 2020, and of its financial performance and its cash flows for the half year ended on that date, in accordance with the *Corporations Act 2001*, including complying with Accounting Standard AASB 134 *Interim Financial Reporting*.

Basis for Conclusion

We conducted our review in accordance with ASRE 2410 *Review of Financial Report Performance by the Independent Auditor of the Entity*. Our responsibilities are further described in the *Auditor's Responsibilities for the Review of the Financial Report* section of our report. We are independent of the Company in accordance with the auditor independence requirements of the *Corporations Act 2001* and the ethical requirements of the Accounting Professional and Ethical Standards Board's APES 110 Code of Ethics for Professional Accountants (including Independence Standards) (the Code) that are relevant to audit of the annual financial report in Australia. We have also fulfilled our other ethical responsibilities in accordance with the Code. We confirm that the independence declaration required by the *Corporations Act 2001* which has been given to the directors of the Company, would be in the same terms if given to the directors as at the time of this auditor's review report.

Directors' responsibility for the half year financial report

The Directors of the Company are responsible for the preparation of the half year financial report that gives a true and fair view in accordance with Australian Accounting Standards and the *Corporations Act 2001* and for such internal control as the Directors determine is necessary to enable the preparation of the half year financial report that gives a true and fair view and is free from material misstatement, whether due to fraud or error.

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Auditor's responsibility

Our responsibility is to express a conclusion on the half year financial report based on our review. We conducted our review in accordance with Auditing Standard on Review Engagements ASRE 2410 *Review of a Financial Report Performed by the Independent Auditor of the Entity*, in order to state whether, on the basis of the procedures described, we have become aware of any matter that makes us believe that the half year financial report is not in accordance with the *Corporations Act 2001* including giving a true and fair view of the Company's financial position as at 31 December 2020 and its performance for the half year ended on that date, and complying with Accounting Standard AASB 134 *Interim Financial Reporting* and the *Corporations Regulations 2001*. As the auditor of Archer Materials Limited, ASRE 2410 requires that we comply with the ethical requirements relevant to the audit of the annual financial report.

A review of a half year financial report consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with Australian Auditing Standards and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Independence

In conducting our review, we have complied with the independence requirements of the *Corporations Act 2001*.

A stylized blue signature of "Grant Thornton" in a cursive script.

GRANT THORNTON AUDIT PTY LTD
Chartered Accountants

A blue ink signature of "J. E. Humphrey" in a cursive script.

J. E. Humphrey
Partner – Audit & Assurance

Adelaide, 23 February 2021

Corporate directory

DIRECTORS

Greg English – Executive Chairman
Alice McCleary – Non-Executive Director
Kenneth Williams – Non-Executive Director

CHIEF EXECUTIVE OFFICER

Dr. Mohammad Choucair

COMPANY SECRETARY

Damien Connor

REGISTERED OFFICE

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National Australia Bank
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AUSTRALIAN SECURITIES EXCHANGE

The Company is listed on the Australian Securities Exchange

ASX CODE: AXE