

ASX / MEDIA ANNOUNCEMENT

Thursday, 28 October 2021

SEPTEMBER 2021 QUARTERLY ACTIVITIES REPORT

Strong operational performance delivers record operating cashflow; Exceptional BMX Auction results provide increased exposure to surging lithium prices.

Access the quarterly investor, analyst and media webcast here at 12.00pm (WST) / 3.00pm (AEST) on Thursday 28 October 2021:

https://webcast.boardroom.media/pilbara-minerals-limited/20210729/NaN616d253f839312001c56f7eb

KEY POINTS

Production and sales

- Record production of 85,759 dry metric tonnes (dmt) of spodumene concentrate (June Quarter: 77,162 dmt), up 11% quarter-on-quarter.
- Spodumene concentrate shipments of 91,549 dmt (June Quarter: 95,972 dmt), exceeding guidance of 77,000-90,000 dmt.
- Tantalite concentrate sales totalled 36,876lbs (June Quarter: 39,234 lbs).

Project development

- Commissioning of the Pilgan processing plant Improvement Projects commenced, with first concentrate production achieved through the new filter press subsequent to quarter-end (Refer ASX release dated 13 October 2021).
- Commenced commissioning of the coarse production circuit, with first spodumene concentrate produced from the Ngungaju processing plant subsequent to quarter end (Refer ASX release dated 13 October 2021).
- Earthworks progressed for the construction of a 6MW solar farm for the Pilgangoora Project with a Power Purchase Agreement signed with Contract Power Australia subsequent to quarter end (Refer ASX release dated 20 October 2021).

Exploration, Mineral Resources and Ore Reserves

- Discovery of new pegmatite domains, together with integration of the Ngungaju Operation, underpinned an increase in the project-wide JORC Reserve and Resource base including.
 - 39% increase in total Mineral Resource to 308.9Mt grading 1.14% Li₂O, 105ppm Ta₂O₅ and 0.59% Fe₂O₃, containing 3.5Mt of Li₂O and 71.7Mlb of Ta₂O₅. (Refer ASX release dated 6 September 2021).
 - o 54% increase in total Proved and Probable Ore Reserve to 162Mt grading 1.2% Li_2O , 100ppm Ta_2O_5 and 1.0% Fe_2O_3 , containing 1.9Mt of Li_2O and 36Mlb of Ta_2O_5 . (Refer ASX release dated 6 October 2021).

Lithium market

- Exceptional results from Pilbara Minerals' first two digital auctions of spodumene concentrate on the Battery Material Exchange (BMX), with a sales price of US\$2,240 / dmt (SC5.5, FOB Port Hedland basis) achieved in September 2021 (Refer ASX release dated 14 September 2021).
- Continued strengthening in global lithium raw materials demand, reflected in material price appreciation during the quarter.
- Price reviews under existing off-take agreements commenced in the Quarter in light of recent significant increases in market pricing for spodumene concentrate.

Corporate

- Record operating cashflow delivers Quarter-end cash balance of \$137.3M, inclusive of \$36.2M of irrevocable bank letters of credit for shipments completed up to 30 September, 2021.
- Subsequent to the end of the Quarter, DSJV agreements executed with POSCO to jointly develop a 43ktpa LHM chemical conversion facility ("**Conversion Facility**") in South Korea. Pilbara Minerals to also supply 315ktpa of spodumene concentrate to the Conversion Facility at market pricing (Refer ASX release dated 26 October 2021).
- Appointment of highly experienced resource industry executive, Miriam Stanborough, as a non-executive Director.
- Agreement reached with former Altura loan noteholders to pay out the outstanding deferred consideration in Company shares, including a negotiated ~5% reduction in the number of shares to be issued. Shares issued following shareholder approval, with no further obligations remaining in respect of the acquisition of the Ngungaju Operation.

1. Operations Overview

During the September Quarter 2021 (**the Quarter**), mining quantities and production activities continued to increase as Pilbara Minerals Limited (**Pilbara Minerals or the Company**; ASX: PLS) responded to strong spodumene concentrate demand and maintained its strong long-term growth trajectory.

1.1 Sustainability

1.1.1 Health and safety

One recordable safety incident was recorded in the September Quarter. A contractor employee received a laceration to the back of their hand which required sutures. The Total Recordable Incident Rate as at the end of the September Quarter was 1.88.

The Company continues to monitor the COVID-19 situation and respond accordingly to any changes in directives by the state and federal governments. To date there has been no material impact on the Company's operations.

1.1.2 Climate change

Pilbara Minerals continued to progress work during the Quarter to support the development of its climate change strategy. As previously disclosed, the following areas underpin Pilbara Minerals' approach towards addressing climate change:

- **Raw material production** sustainable and ethical lithium extraction and processing.
- **Decarbonisation** pathway to net zero emissions (Scope 1 and 2) in the decade commencing 2040.
- Innovation developing tomorrow's solutions to address today's challenges.
- Build resilience a climate change resilient business.

The Company is pleased with the progress it has made in these areas during the Quarter through several initiatives, including:

- Scoping Study continued to be progressed with Calix under an MOU to investigate an alternative 'electric' calcination process (using renewable energy) to produce a new 'mid-stream product', being a concentrated lithium salt. The processing path being studied is expected to materially reduce Scope 3 emissions within the lithium chemical supply chain.
- Following encouraging test results, a Front End Engineering and Design (FEED) has commenced on an ore sorting improvement project. This aims to reduce the amount of waste processed through the processing plant, thereby reducing energy intensity in the production of spodumene concentrate.
- Investigations continued in respect of developing various decarbonisation pathway options to achieve a target of net zero emissions (Scope 1 and 2) during the decade commencing 2040.
- Earthworks were completed in readiness for constructing a 6MW solar farm power solution at the Pilgangoora Project (Refer ASX release dated 20 October 2021).

Pilbara Minerals continued to work towards achieving its climate change strategy and ambitions. The Company recognises it will take a concerted effort over time to deliver on these commitments to ensure Pilbara Minerals makes a notable positive impact to the global response to climate change and is showing steady progress.

Further information on these initiatives is provided within the Company's 2021 Annual and Sustainability Report (Refer ASX release dated 21 October 2021).

1.1.3 People and culture

During the Quarter, Pilbara Minerals launched a recruitment campaign that has successfully placed over 110 new positions associated with the recommencement of the Ngungaju processing plant, South Pit mining operation (following the decision to adopt an interim owner-operator model for this specific part of the operation) and other operations and head office resourcing requirements in response to expanded operations. All positions were filled on schedule to enable the planned commencement of the Ngungaju plant in October 2021.

The Company continued to roll out an internal communications campaign reiterating the Company's zero tolerance approach to workplace harassment and inappropriate behaviour. The campaign titled 'Unmute Yourself and Stand Up if You See Disrespect', aligns with the Australian Government's recent campaign and calls upon employees and contractors to call out bad or disrespectful behaviour in the workplace. The campaign involved presentations to employees and contractors on what is and is not acceptable behaviour, how to respond and report if you experience this in the workplace, and what support mechanisms are available.

Further, the Company is fully supportive of the Parliamentary Inquiry into sexual assault and harassment in the industry, with Pilbara Minerals participating in this inquiry via its industry memberships.

1.2 Mining and processing commentary

Since the June Quarter 2021, mining activity has increased to support expanded mine development and processing plant throughput as the Company responds to increased customer demand.

Total material mined was 3,568,836 wet metric tonnes (wmt) from the Central Pit. Of this, a total of 639,188 wmt of ore was mined at 1.42% Li_2O (refer Table 1).

As highlighted previously (refer ASX release dated 25 June 2021), waste movements during the Quarter supported mine development activities and access to additional ore. Waste movements will continue to be higher over approximately the next 12-24 months as the Company catches up on waste movements previously deferred to access more ore for production growth in the Central Pit Stage 2 and 3 development areas.

Processing plant feed of 443,691 dmt (June Quarter: 422,111 dmt), resulted in the production of 85,759 dmt of spodumene concentrate (SC6.0 basis) (refer Table 2).

The processing plant achieved an 84% runtime for the Quarter (against forecast 84% runtime), reflecting excellent throughput and combined product recovery rates.

Quantities for mining, ore processed, shipments and concentrate stocks for the Quarter are shown in Tables 1, 2 and 3 below.

	Units	Q2 FY21	Q3 FY21	Q4 FY21	Q1 FY22
Ore mined	wmt	466,121	585,068	672,020	639,188
Waste mined	wmt	612,147	1,639,128	1,976,039	2,929,647
Total material mined	wmt	1,078,268	2,224,196	2,648,059	3,568,836
Ore processed	dmt	381,973	415,277	422,111	443,691

Table 1: Total ore mined and processed

1.2.1 Shipments and sales

91,549 dmt of spodumene concentrate was shipped (SC6.0 basis) during the Quarter, exceeding guidance of 77,000-90,000 dmt.



Figure 1: Quarterly spodumene concentrate production and shipments (dmt)

The Quarter saw continued strong improvement in lithium market conditions. Based on customer feedback and other market enquiries, Pilbara Minerals expects these conditions will continue, with forecast spodumene concentrate production for the December Quarter 2021 expected to be in the range of ~90,000 to 115,000 dmt, inclusive of both Pilgan and Ngungaju plant production.

Shipped tonnes and sales will be a sub-set of the combined plant production, pending the ramp-up of both facilities and the timing of tonnes available for shipment during the December 2021 Quarter.

Tantalite concentrate sales for the Quarter were 36,876lbs (inc. provisional sales, pending final reconciliation and assay results).

	Units	Q2 FY21	Q3 FY21	Q4 FY21	Q1 FY22
Spodumene concentrate produced	dmt	63,712	77,820	77,162	85,759
Spodumene concentrate shipped	dmt	70,609	71,229	95,972	91,549
Tantalite concentrate produced	lbs	28,456	36,481	34,048	33,557
Tantalite concentrate shipped	lbs	18,541	47,831	39,234	36,876

Table 2: Production and shipments

Table 3: Stocks position

	Units	Q2 FY21	Q3 FY21	Q4 FY21	Q1 FY22
Spodumene concentrate stocks	dmt	30,911 ¹	40,134	18,845	12,557 ¹
Tantalite concentrate stocks	lbs	36,124	24,775	19,588	16,269

¹Closing balance includes reconciliation adjustments of -498 dmt during the Quarter for final survey adjustments, storage handling at the mine site, moisture reconciliation and draft survey at port.

2. Market Commentary

Supported by an accelerating push towards global decarbonisation, prices for lithium raw materials continued to strengthen markedly during the September Quarter.

According to Platts, battery grade Lithium Carbonate (ex-works China) appreciated from 87,000 Yuan to 185,000 Yuan over the quarter, representing a price increase of approximately 110% over the period.

Lithium hydroxide ex-works China is also well above its 2018 peak of approximately \$25,000/t, up approximately 250% year-to-date to approximately US\$28,400/t as at the end of September 2021.

The spodumene concentrate spot market also continued to strengthen during the Quarter, with an online auction of 8,000dmt of Pilgangoora concentrate on Pilbara Minerals' recently launched Battery Material Exchange (BMX) platform achieving a realised price of US\$2,240/dmt (SC5.5, FOB Port Hedland basis) on 14 September 2021, up from the price of US\$1,250/dmt achieved via the auction on 29 July 2021.

On a pro rata lithia basis inclusive of freight costs, the September price of US\$2,240/dmt (SC5.5, FOB Port Hedland basis) is approximately equivalent to a price of US\$2,500/dmt (SC6.0, CIF China basis).

As outlined in the June 2021 Quarterly Report, Pilbara Minerals sees a growing disconnect in the market between longer dated spodumene offtake pricing outcomes (which typically reference lithium chemical pricing inputs), compared to the emerging 'spodumene spot sales market'.

The Company is maximising its exposure to this dynamic via its BMX digital sales platform, facilitating trade auctions for any product available outside existing longer dated off-take arrangements.

The Company has continued to undertake price reviews with its offtake partners (as allowed for under its off-take agreements) to ensure pricing outcomes remain aligned with the prevailing market price for spodumene concentrate under longer dated offtake terms. While final pricing mechanisms are not yet completely agreed with all offtake customers, spodumene pricing is expected to be revised upwards (relative to the historical norm) and would currently support pricing in the range of approximately USD\$1650-\$1800/dmt CIF China (SC6.0 basis), subject to any further provisional pricing adjustment.

In a further demonstration of the rapidly expanding demand conditions, Ord Minnett in its October lithium market review significantly increased its forecast penetration rate for battery electric vehicles (BEV) from 21% to 34% by 2030, and total EVs from 45% to 62%. This led to a significant upgrade to its 2030 lithium market demand estimate to 3.4Mt of lithium carbonate equivalent (LCE), up from a forecast 2.2Mt previously.

Ord Minnett's latest estimate of compound annual growth rate (CAGR) for lithium demand to 2030 increased to 24%, versus 19% previously.

3. Project Development

3.1 Ngungaju plant restart

Following Board approval for the re-start of the Ngungaju Plant in late June 2021 (refer ASX release dated 25 June 2021), Pilbara Minerals has undertaken a successful construction and maintenance acceleration program during the September 2021 Quarter to bring forward production to take advantage of additional sales opportunities.

Wet commissioning with first ore produced from the coarse production circuit at the Ngungaju Plant commenced on 7 October 2021, representing the first step of a staged recommissioning of the Ngungaju Operation. The fines spodumene processing circuit is expected to commence production during the March Quarter 2022.

First concentrate production from the Ngungaju Processing Plant was delivered on 13 October 2021 (Refer ASX release dated 13 October 2021).

The recommencement of the coarse circuit at Ngungaju will initially utilise existing weathered ore already stockpiled at Pilgangoora that was not amenable to flotation, but which now provides an opportunity for low-cost feed ore during the initial ramp-up period when concentrate is sourced solely from the coarse circuit.

This weathered ore feed is expected to be utilised through to the recommencement of production from the fines circuit, at which time fresh ore from the South Pit will be introduced to the Ngungaju Plant.

Initial production from the coarse circuit is expected to yield lower lithia recoveries, which should improve once the fines circuit is recommissioned and optimised.

Annual production capacity of approximately 180,000 to 200,000 dmt is expected from the Ngungaju plant following completion of ramp up from mid-2022 onward, complementing existing production capacity from the adjacent Pilgan Plant (~330,000tpa increasing to 360,000 -380,000tpa following completion and ramp up of the improvement works).

Additional production from Ngungaju will allow further sales into the emerging spot market for spodumene concentrate, including on the recently launched BMX digital sales platform.

3.2 Pilgan Plant improvement project

Pilbara Minerals continued to progress improvement projects at the Pilgan Plant during the Quarter.

Delivery of the filter press was completed in accordance with the planned schedule during the Quarter, despite the highly competitive environment for services and equipment across the West Australian resources industry.

First concentrate production was achieved through the new filter press at the Pilgan Plant in mid-October 2021 (Refer ASX release dated 13 October 2021).

As previously advised, these improvements are expected to unlock an additional 10-15% (~30-50,000tpa) of production capacity at the Pilgan Plant following ramp-up, increasing the annualised capacity to up to ~360,000-380,000tpa. The improvement projects are expected to increase plant operating time and throughput, lower final product moisture and further manage product recovery performance.

3.3 Pilgan Plant incremental expansion

In readiness for future expansion of the Pilgangoora Project, Pilbara Minerals is progressing study works and detailed engineering to support the next phase of incremental expansion for the Pilgan Plant.

Previous studies contemplated a phased and incremental expansion of the Pilgan Plant to ultimately increase total production to 5Mtpa of ore feed or 800,000-850,000tpa of spodumene concentrate production (Refer ASX release dated 27 August 2019). This total expansion, when combined with production from the Ngungaju Operation (180,000-200,000tpa) would increase total spodumene concentrate production capacity to more than 1Mtpa.

Current studies are targeting the first phase of the incremental expansion, providing approximately 100,000tpa of additional spodumene concentrate production. The study and detailed engineering for this expansion is expected to be completed late in the December Quarter 2021. This first phase of the expansion capacity is aimed at being delivered in a timeframe of 9-12 months, following a Final Investment Decision (FID). Any FID will take into consideration market conditions, demand from customers and funding requirements at that time.

4. Resource and Reserve Growth

4.1 Mineral Resource Update

During the Quarter, Pilbara Minerals announced a further substantial increase in the Mineral Resource at the Pilgangoora Project to 308.9 million tonnes, reinforcing its position as the world's premier hard rock lithium operation (Refer ASX release dated 6 September 2021).

The updated JORC Mineral Resource, which represents a 39% increase in total resource tonnage compared with the depleted resource statement as at 30 June 2020, now comprises a total of 308.9 million tonnes grading 1.14% Li_2O and 105ppm Ta_2O_5 , containing 3.5 million tonnes of lithium oxide and 71.7 million pounds of Ta_2O_5 .

The updated Mineral Resource incorporates all historical data including drilling data acquired through a number of exploration campaigns completed by Pilbara Minerals between November 2014 and June 2021. The update also includes the integration of the Mineral Resource of the Ngungaju Operation following Pilbara Minerals acquisition of Altura Lithium Operations Pty Ltd in January 2021.

The resource estimation was carried out by independent resource consultancy, Trepanier Pty Ltd.

The reporting of all domains (using a cut-off of 0.2% Li₂O and depleted to end of June 2021) resulted in a Measured, Indicated and Inferred Mineral Resource estimate (Table 4) totalling:

• 308.9 million tonnes grading 1.14% Li₂O containing 3.5 million tonnes of Li₂O

Category	Mt	Li₂O %	Ta₂O₅ Ppm	Li ₂ O Mt	Ta₂O₅ Mlb	Factored Fe ₂ O ₃ %
Measured	21.5	1.35	133	0.3	6.3	0.50
Indicated	188.7	1.15	100	2.2	41.4	0.56
Inferred	98.8	1.06	110	1.0	24.0	0.67
TOTAL	308.9	1.14	105	3.3	71.7	0.59

Table 4: JORC Mineral Resource Estimate at 30 June 2021 at 0.2% Li₂O cut-off grade

Notes:

1. Mineral Resource reported above 0.2 Li₂O% cut-off.

2. Appropriate rounding applied.

3. Refer to ASX release dated 6 September 2021.

For further information on the Company's current Mineral Resource estimate, refer to ASX release dated 6 September 2021.

4.2 Ore Reserve Update

Based on the updated Mineral Resource estimate outlined above, subsequent to the end of the September 2021 Quarter, Pilbara Minerals announced a restated and combined JORC Ore Reserve (inclusive of the Ngungaju Operations), delivering a 54% increase in total Proved and Probable Ore Reserve Tonnes and a 47% increase in the contained lithium oxide at Pilgangoora (Refer ASX release dated 6 October 2021).

AMC Consultants Pty Ltd (AMC) were commissioned by Pilbara Minerals to assist in the development of the 30 June 2021 Ore Reserve estimate for the Company's 100% owned Pilgangoora Project.

Ore Reserve Classification	Ore Tonnes	Li ₂ O	Ta2O5	Fe ₂ O ₃	Contain	ed Metal
	Mt	%	ppm	%	Lithium Mt	Tantalum Mlb
Proved	20.3	1.29	120	1.11	0.3	5.5
Probable	141.6	1.17	97	1.02	1.7	30.2
TOTAL	161.9	1.18	100	1.03	1.9	35.7

Table 5: Ore Reserves estimate as at 30 June 2021 (including stockpiles)

Notes:

1. Totals may not add up due to rounding.

- 2. All open pit Ore Tonnes north of the Pilgangoora Creek are defined using Li₂O and Ta₂O₅. All ore south of the Pilgangoora Creek are defined using Li2O only. Ta₂O5 grades for south of the creek have been added to the weight average grades in the table but will not be recovered in the processing plant. Ta₂O₅ contributes 3% to the revenue stream.
- 3. Ore Reserves are based on an expected value calculation to report material above a zero \$/t net expected value, excluding mining cost. The cut-off to define ore is, therefore, variable by metal grades, but equates to an average cut-off grade of approximately 0.30 % Li₂O equivalent taking the contributing Ta₂O₅ grades into account for the Pilgan plant and up to 0.38 % Li₂O for the Ngungaju plant (depending on royalties attributed to the tenement the ore is extracted from).
- 4. The Ngungaju Process Plant has an average recovery of 67.7%. The Pilgan Process Plant has average recoveries of 74.6% for Li₂O and 50% for Ta₂O₅. Only the Pilgan plant will utilise an ore sorting circuit to process pegmatite ore at the contact with basalt, comprising approximately 15% of the Ore Reserve.
- 5. Ore Reserves were estimated using projected 6% Li2O concentrate prices of US\$588/dmt (FOB price) for Central, East and South pits and US\$700/dmt for smaller pits (6% of Ore Reserves) scheduled for later in the mine life. US\$39.50/lb was applied for a 5 to 10% Ta2O5 concentrate (priced at the mine gate).
- 6. The Ore Reserve includes allowance for ore losses and dilution during mining and incorporates inclusion of an additional 5% global ore loss based on operations reconciliation data.

For further information on the Company's current Ore Reserve estimate, refer to ASX release dated 6 October 2021.

5. Exploration and Geology

Exploration activities for the Quarter included resource development and reverse circulation (RC) grade control drilling, as well as desktop studies and field mapping undertaken over some of the Company's regional tenements.

5.1 Pilgangoora Project (Pilbara Minerals 100%)

Pilbara Minerals completed the strategic exploration and resource extensional drilling program along the under-explored region on the tenement boundary adjacent to the

Ngungaju Plant and associated facilities during the Quarter. This culminated in the previously stated substantial increase in the Mineral Resource at the Pilgangoora Project to 308.9 million tonnes. Exploration drilling undertaken during the Quarter included seven RC holes (PLS1370 to PLS1376) for 1,248 metres (Annexure A). Results received from the balance of the exploration program included:

- $3m \otimes 1.36\% \text{ Li}_2\text{O}$ and $44 \text{ ppm Ta}_2\text{O}_5 \text{ from } 23m (PLS1369)$
- 9m @ 1.57% Li_2O and 60 ppm Ta_2O_5 from 77m (PLS1369)
- 10m @ 1.94% Li_2O and 34 ppm Ta_2O_5 from 34m (PLS1371)
- 20m @ 1.84% Li₂O and 57 ppm Ta₂O₅ from 34m (PLS1375)

Significant exploration upside remains within the project area, with mineralisation remaining open at depth within all the defined pit areas and other potential exploration targets particularly to the east of the Ngungaju operation.

A sterilisation drilling program targeting a potential alternate waste dump location to the west of the Central pit area also commenced this Quarter. A total of 20 holes have been proposed of which 4 holes for 400 metres were completed during the Quarter. Several pegmatite domains have been intersected however no results were available at Quarter end.

The Company also completed 588 RC grade control holes for 15,226m within the South and Central pits during the Quarter (Annexure A).

5.2 Regional Projects (Pilbara Minerals 100%)

Exploration over the Company's regional tenements included desk top studies, field reconnaissance and a short drilling program at the Utara prospect on E45/2287. The program was designed to further drill test several previously identified pegmatite domains. A total of four holes were drilled for 399 metres. Results are pending. Additional drilling is scheduled to take place at the Mt York prospect (E45/2241) in the December Quarter.

5.2.1 Mt Francisco JV (Pilbara Minerals Limited 70%, Atlas Iron 30%)

No exploration work was undertaken at Mt Francisco during the Quarter.

6. Corporate

6.1 POSCO Downstream JV (DSJV) opportunity

During the Quarter, Pilbara Minerals and POSCO continued to pursue the DSJV opportunity. Subsequent to the end of the quarter, the Company announced that it had executed a Shareholders Agreement with POSCO for the formation of an incorporated joint venture, to develop and operate a 43ktpa lithium hydroxide monohydrate (LHM) Conversion Facility in South Korea (Refer ASX release dated 26 October 2021).

Under revised offtake terms, Pilbara Minerals will supply 315ktpa of chemical grade spodumene concentrate on commercial terms to the Conversion Facility. This will be sourced from Pilbara Minerals' existing installed production capacity at the Pilgangoora Project (inclusive of the recently restarted Ngungaju Plant). Product sold under the offtake agreement will be at prevailing market prices for chemical grade spodumene concentrate sold on a CIF basis.

The project development timeline for the Conversion Facility will see major construction works likely to commence from early 2022, with detailed engineering and early works already underway. Construction of the first train of the Conversion Facility is expected to be

completed by mid-2023, with the second train to be completed approximately three months later.

6.2 BMX sales trading platform

During the Quarter, the Company completed the first two cargo auctions via its newly established Battery Material Exchange (**BMX**) platform.

The BMX platform is intended to provide Pilbara Minerals with a further avenue for sales growth, offering interested parties with access to current and future unallocated spodumene concentrate product from the Company's operations, including from the Ngungaju Plant following its recommencement.

The first auction via the BMX was held on 29 July 2021, with a 10,000dmt cargo (SC 5.5%) of spodumene concentrate from the Pilgangoora Operation being sold to the highest bid of US\$1,250/dmt FOB Port Hedland. On a pro rata lithia basis inclusive of freight costs this approximately equates to a price of US\$1,400/dmt (SC6.0, CIF China basis).

The second auction took place on 14 September 2021, with a 8,000dmt cargo sold to the highest bid of US\$2,240/dmt (SC5.5, FOB Port Hedland basis). On a pro rata lithia basis inclusive of freight costs this approximately equates to a price of US\$2,500/dmt (SC6.0, CIF China basis).

Given the strong margins yielded through the BMX trading platform to date, Pilbara Minerals expects to channel more concentrate sales through the platform, including concentrate generated following the recommencement of the Ngungaju processing plant.

6.3 Appointment of Non-Executive Director

Pilbara Minerals appointed highly experienced resource industry executive, Miriam Stanborough, to its Board as a non-executive Director, effective early October 2021.

Ms Stanborough is a chemical engineer with more than 20 years' experience in the mineral processing industry across various commodities including copper, uranium, gold, silver, alumina and mineral sands. She was previously part of the senior leadership team at Monadelphous, where she was Group Manager – Productivity and Innovation and previously its Group Manager - Business Services.

Prior to that, she held a number of senior roles at Iluka Resources, Alcoa Australia and WMC Resources in technical development, production management, project management, business improvement, HR & diversity strategy, and sales and marketing.

She holds degrees in Chemical Engineering, Mineral Economics and Arts, is a member of the Australasian Institute of Mining and Metallurgy and is a graduate of the Australian Institute of Company Directors.

Her other current Board roles include Chair of the Minerals Research Institute of Western Australia (MRIWA), Deputy Chair of the Northern Agricultural Catchments Council (NACC), and Deputy Chair of Scouts WA. She also sits on the Independent Assessment Committee for the Federal Government's Boosting Female Founders Initiative.

6.4 Payment of Deferred Consideration for ALO Acquisition

During the Quarter, the Company settled all of the outstanding deferred consideration due to the former Altura loan noteholders pursuant to the acquisition of Altura Lithium Operations Pty Ltd (ALO).

The acquisition of ALO was successfully completed on 20 January 2021 following an upfront cash payment of US\$155 million. As previously advised in Pilbara Minerals' ASX releases, including those dated 1 December 2020 and 20 January 2021, further deferred

consideration representing approximately 69 million shares (or its cash equivalent) was also due to the Altura loan noteholders in either cash or shares (at Pilbara Minerals' election) at any time prior to the 12-month maturity date, being 20 January 2022.

A variation deed was executed with the Altura loan noteholders during the Quarter that provided for a discount to the number of these shares to be issued to complete the deferred consideration early. As a result, 65,340,902 shares (representing a ~5% discount, or approximately 3.5 million less shares than the original amount) has been issued in two equal tranches as final settlement of the deferred consideration.

The first tranche of shares was issued on 17 August (under Pilbara Minerals' existing Listing Rule 7.1 placement capacity), with the second tranche issued on 8 October 2021 following the receipt of shareholder approval.

Following final settlement, a deferred consideration fair value movement expense of ~\$37.2M will be recognised in the Company's profit and loss for FY22, to recognize the impact of the increase in the Company's share price between 30 June 2021 and the dates of final settlement.

6.5 FINANCIAL RESULTS FROM OPERATIONS

The Company shipped 91,549 dmt of spodumene concentrate for the Quarter, exceeding guidance of 77,000-90,000 dmt.

Average SC6.0 market reference prices continued to increase during the Quarter, resulting in substantially higher prices being received from customers compared to the June Quarter 2021.

Actual average pricing received for September spodumene concentrate deliveries was in the range of USD\$850-\$900/dmt, inclusive of estimated final pricing adjustments.

Pursuant to the terms of sale, the increasing pricing dynamic evident since the beginning of the September Quarter has also led to positive final pricing adjustments of ~A\$9.8M associated with provisionally priced cargoes shipped during the September Quarter 2021, with cash proceeds expected to be received during the December 2021 Quarter (pending final pricing outcomes).

As well as sales to offtake customers, the Company has increased its exposure to spot market pricing for cargoes sold through the new BMX trading platform. The Company sold two cargoes via the BMX platform during the September Quarter (SC 5.5% basis - FOB Port Hedland), achieving pricing of US\$1,250/dmt and US\$2,240/dmt respectively.

A unit operating cost¹ of US\$445/dmt (CIF China) was achieved for the Quarter, being A\$605/dmt at a quarterly average AUD:USD exchange rate of 0.7351 (June Quarter: US\$441/dmt; A\$572/dmt at an average quarterly AUD:USD exchange rate of 0.7703), which was slightly higher than the full-year FY22 guidance of US\$395 – US\$430/dmt.

The higher unit operating cost for the September 2021 Quarter (vs the full-year FY22 guidance) was impacted by prevailing market conditions, with higher royalty costs linked to a higher spodumene concentrate selling pricing (US\$12/dmt higher than FY22 guidance), as well as higher ocean freight costs being incurred due to a further tightening in the supply of suitable vessels coupled with strong shipping demand conditions (US\$18/dmt higher than prior FY22 guidance).

¹ Unit operating costs include mining, processing, transport, state and private royalties, native title costs, port, shipping/freight, and site based general and administration costs and are net of Ta₂O₅ by-product credits. Unit operating costs are calculated on an incurred basis (including accruals), include inventory movements, and any credits associated with capitalised deferred waste mine stripping costs.

6.6 FY2022 guidance update

As previously disclosed during August 2021 (refer to the Company's FY2022 Guidance Presentation announcement dated 26 August 2021), spodumene concentrate production for the 2022 Financial Year (FY2022) is forecast to be between 460,000 - 510,000 dmt, with forecast shipments expected to be between 440, 000 - 490,000 dmt. There are no material changes to this guidance.

This guidance provided for forecast unit operating costs for full year FY2022 in the range of A\$525-A\$575/dmt CIF China (US\$395 -US\$430/dmt²). Costs are expected to be higher during FY2022 and FY2023 due to elevated strip ratios as Pilgan production is ramped-up and the Ngungaju Operation is restarted. Future unit operating costs are then expected to reduce to A\$450-A\$500/dmt CIF China (US\$340-US\$375/dmt) beyond FY2023 through the combined effect of strip ratios moderating, nameplate production capacity being achieved in combination with plant throughput increases and synergies being won from the combined operation.

As noted above (section 4.2), the Company has recently recalculated its Ore Reserves inclusive of the consolidation of the Ngungaju Operation. As foreshadowed in its August 2021 guidance, the Company has now completed its assessment of the new Ore Reserve to determine those mining tonnes that provide a future economic benefit, to establish the value of FY22 mining costs able to be capitalised on the Company's balance sheet as deferred waste mine stripping costs.

Applying Pilbara Minerals accounting treatment for deferred waste mine stripping costs, it is expected that during FY22 between A\$40M-A\$50M of mining costs will be treated as capitalised deferred waste mine stripping costs. The wide range provided takes into account the significant ramp up that will be taking place at the Pilgangoora Operation during FY22.

The Company has not adjusted its unit operating costs guidance for FY22 following finalisation of the FY22 guidance for capitalised deferred waste mine stripping costs (as above). For FY22 it is now expected that the unit operating cost benefit from capitalising deferred waste mine stripping costs will likely be offset by higher sea freight and royalty costs associated with prevailing market conditions, and particularly the market pricing outcomes expected.

Beyond CY2022, costs are expected to trend lower with the realisation of expected synergies and improved economies of scale from the combined operations following the ramp up of the Ngungaju Operation, as well as strip ratios and freight costs returning to more normal levels.

6.7 CASH BALANCE

Pilbara Minerals closed the Quarter with a cash balance of \$137.3M, inclusive of \$36.2M of irrevocable bank letters of credit for shipments completed within the Quarter (30 June 2021: \$115.7M). A record high positive cashflow from operations of \$48.5M was generated, with \$14.9M being spent on the combination of Pilgan capital improvement works and the restart of the Ngungaju Operation, and \$1.8M in interest was paid under the USD senior secured syndicated finance facility.

² At an AUD:USD exchange rate of 0.75.

During the Quarter, Pilbara Minerals received:

- proceeds of \$100.9M from customer sales (inclusive of A\$1.8M of receipts following finalisation of final pricing adjustments on the June Quarter cargoes that were provisionally priced); and
- proceeds of \$1.1M following the exercise of share options.

Major cash outflows and movements during the Quarter included:

- \$52.4M on operating costs at the Pilgangoora Project;
- \$3.3M on care and maintenance and operational readiness costs for the restart of the Ngungaju Operation;
- \$11.6M on capital costs related to the Pilgan Plant Stage 1 improvements, the restart of the Ngungaju plant and capitalised mine waste stripping costs associated with mining activities (with \$2.7M of the \$11.2M of capitalised mine waste stripping costs incurred having been paid during the Quarter);
- \$2.0M in interest and financing payments, largely associated with the USD senior secured syndicated finance facility (including \$0.2M principal repayment under the cash sweep mechanism);
- \$5.9M on payroll, administration and corporate costs (including \$1.9M relating to FY2021 incentive scheme payments); and
- \$4.5M on exploration and evaluation work and feasibility studies.

The US\$15M Working Capital Facility provided by BNP Paribas remains undrawn.

Contacts

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Release authorised by Ken Brinsden, Pilbara Minerals Limited's Managing Director.

MORE INFORMATION

About Pilbara Minerals

Pilbara Minerals is the leading ASX-listed lithium company, owning 100% of the world's largest, independent hard-rock lithium operation. Located in Western Australia's resourcerich Pilbara region, the Pilgangoora Project and Operation produces a spodumene and tantalite concentrate. The significant scale and quality of the operation has attracted a consortium of high quality, global partners including Ganfeng Lithium, General Lithium, Great Wall Motor Company, POSCO, CATL and Yibin Tianyi.

While it continues to deliver a low-cost, quality spodumene to market, Pilbara Minerals is pursuing a growth and diversification strategy to become a sustainable, low-cost lithium producer and fully integrated lithium raw materials and chemicals supplier in the years to come.

Through execution of this strategy, Pilbara Minerals is positioned to become a major player in the rapidly growing lithium supply chain, underpinned by increasing demand for clean energy technologies such as electric vehicles and energy storage as the world pursues a sustainable energy future.

Competent Person's Statement

The information in this ASX release that relates to Exploration Results and Exploration Targets is based on and fairly represents information and supporting documentation prepared by Mr John Holmes (Exploration Manager of Pilbara Minerals Limited). Mr Holmes is a shareholder of Pilbara Minerals. Mr Holmes is a member of the Australasian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration and to the activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Holmes consents to the inclusion in this report of the matters based on his information in the form and context in which they appear.

No New Information Statement

Information in this ASX release relating to Mineral Resource and Ore Reserve estimates is extracted from the ASX releases dated 6 September 2021 and 6 October 2021. Pilbara Minerals confirms that it is not aware of any new information or data that materially affects the information included in these announcements and that all material assumptions and technical parameters underpinning the Mineral Resource and Ore Reserve estimates continue to apply and have not materially changed. Pilbara Minerals confirms that the form and context in which the competent persons' findings are presented in this ASX release have not been materially modified from the original market announcements.

Information in this ASX release relating to production targets and forecast information derived from the production targets (including information relating to the proposed expansions of the Pilgangoora Project including the Pilgan Plant and Ngungaju Plant), is extracted from the ASX announcement dated 3 August 2018 entitled "Outstanding DFS Results Support Pilgangoora Expansion", the ASX announcement dated 27 August 2019 entitled "Update on Partnering Process and Revised Stage 2", ASX announcement dated 11 May 2021 (Pilbara Minerals and the Pilgangoora Project – Ready for the Global Energy Transformation), ASX announcement dated 25 June 2021 (Board Approves Staged Restart at Ngungaju Plant), ASX announcement dated 26 August 2021 (Annual Financial Results and FY2022 Guidance Presentation), ASX announcement dated 6 September 2021 (Significant Increase in Pilgangoora Resource), ASX announcement dated 6 October 2021 (Material Increase in Pilgangoora Ore Reserves), ASX announcement dated 13 October 2021 (Rampup of Pilgan Plant Improvement Project Commences), ASX announcement dated 13 October 2021 (First Concentrate Produced from the Ngungaju Processing Plant) and the 30 June 2021 Annual Report. Pilbara Minerals confirms that it is not aware of any new information or data that materially affects the information included in these announcements and that all material assumptions and technical parameters underpinning the Minerals Resource and Ore Reserve estimates, production targets and forecast financial information derived from the production targets in the announcements continue to apply and have not materially changed. Pilbara Minerals confirms that the form and context in which the competent persons' findings are presented in this ASX release have not been materially modified from the original market announcements.

Scoping and other technical studies in respect of the incremental Stage 2 expansion have been undertaken to determine the potential viability of the expansion and to reach a decision to proceed with more definitive studies. Each scoping study has been prepared to an accuracy level of ±30%. Each scoping and technical study is based on low-level technical and economic assessments and is insufficient to provide assurance of an economic development case at this stage or provide certainty that the conclusions of the studies will be realised. The results of the studies should not be considered a profit forecast or production forecast.

Forward Looking Statements and Important Notice

This announcement may contain some references to forecasts, estimates, assumptions, and other forward-looking statements. Although the Company believes that its expectations, estimates, and forecast outcomes are based on reasonable assumptions, it can give no assurance that they will be achieved. They may be affected by a variety of variables and changes in underlying assumptions that are subject to risk factors associated with the nature of the business, which could cause actual results to differ materially from those expressed herein.

All references to dollars (\$) and cents in this announcement are to Australian currency, unless otherwise stated.



Annexure A - Drill Hole Location Plan - September Quarter, 2021

APPENDIX 1 - DRILL HOLE COLLARS (Sept Q 2021)

Prospect	Hole ID	North GDA94	East GDA94	Dip	Azimuth	Depth
Southern Corridor	PLS1370	7668838	698002	-90	0	150
Southern Corridor	PLS1371	7668857	697929	-90	0	256
Southern Corridor	PLS1372	7668796	698040	-90	0	130
Southern Corridor	PLS1373	7668697	698021	-90	0	154
Southern Corridor	PLS1374	7668398	697959	-90	0	165
Southern Corridor	PLS1375	7669233	698026	-90	0	244
Southern Corridor	PLS1376	7668599	697983	-90	0	149
Utara	PLS1377	7674997	699153	-60	290	100
Utara	PLS1379	7675266	698942	-60	290	100
Utara	PLS1380	7675354	698990	-60	290	91
Utara	PLS1381	7675437	699040	-60	290	108
Central - Sterilisation	PLS1382	7669800	696800	-60	270	100
Central - Sterilisation	PLS1383	7669797	696843	-60	270	100
Central - Sterilisation	PLS1384	7669811	696906	-60	270	100
Central - Sterilisation	PLS1385	7669801	696949	-60	270	100
TMF- Monitoring Bore	PMB021	7671615	695897	-90	0	6
TMF- Monitoring Bore	PMB022	7671224	696415	-90	0	6

Hole ID	From (m)	To (m)	Thickness (m)	Li2O %	Ta2O5 (ppm)
PLS1369	23	36	13	1.36	43.92
PLS1369	77	96	19	1.57	45.58
PLS1369	143	154	11	1.44	86.73
PLS1369	172	175	3	1.94	36.33
PLS1369	231	236	5	1	63.2
PLS1370	0	3	3	1.59	70.67
PLS1370	51	54	3	1.32	63.67
PLS1370	77	82	5	2.31	61.8
PLS1370	110	116	6	0.98	55.17
PLS1371	2	6	4	1.44	48.25
PLS1371	34	44	10	1.94	59.4
PLS1371	59	68	9	1.42	53.22
PLS1371	139	150	11	0.95	96.55
PLS1371	174	184	10	1.61	53.2
PLS1371	232	239	7	0.8	19.71
PLS1371	246	254	8	1.47	63.81
PLS1373	82	83	1	1.21	47
PLS1373	137	141	4	1.12	72.25
PLS1373	146	148	2	1.16	74.5
PLS1374	28	34	6	1.24	102
PLS1374	133	134	1	1.1	69
PLS1374	138	140	2	1.06	66
PLS1375	38	42	4	1.08	116.25
PLS1375	69	70	1	2.09	71
PLS1375	100	117	17	1.5	85.12
PLS1375	170	172	2	0.61	84
PLS1375	211	231	20	1.84	57.15
PLS1375	234	244	10	1.34	52
PLS1376	20	21	1	1.48	79
PLS1376	75	76	1	0.52	59
PLS1376	139	147	8	1.03	84.38

APPENDIX 2 – DRILL HOLE INTERCEPTS (0.5% Li20 lower cut-off grade)



JORC Code, 2012 Edition – Table

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	 The deposit has been sampled using a series of reverse circulation ("RC") holes and selected diamond holes for metallurgical sampling and checking of existing RC holes by drilling "twins". Talison Minerals Pty Ltd ("Talison") conducted a 54 drill hole RC program in 2008 totalling 3,198m and 29 drill holes for a total of 2,783m in 2010. Between 2010 and 2012, Talison changed its name to Global Advanced Metals ("GAM"). GAM completed 17 RC holes for 1,776m in 2012. PLS have completed a total of 2,993 holes for 219,952metres since acquiring the Pilgangoora Project. This includes 138,484m of exploration RC drilling, 57,323m infill RC grade control drilling, 16,109m of RC water exploration and development drilling and 9,563 metres of diamond drill core. This includes 13,399m of RC exploration drilling in 2021. A total of 17 holes for 2059 m were drilled during the September quarter 2021. (Annexure A) A total of 79,377m of RC drilling were completed at the former Altura Lithium Operations.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	 Talison/GAM RC holes were all sampled every metre, with samples split on the rig using a cyclone splitter. The sampling system consisted of a trailer mounted cyclone with cone splitter and dust suppression system. The cyclone splitter was configured to split the cuttings at 85% to waste (to be captured in 600mm x 900mm green plastic mining bags) and 15% to the sample port in pre-numbered, draw-string calico sample bags (12- inch by 18-inch). In subsequent RC drilling completed by PLS during 2015 & 2016 samples were collected every metre in pegmatite zones and a combination of 2

Criteria	JORC Code explanation	Commentary
		 to 6 metres into footwall & hanging wall country rock for waste rock characterisation studies. PLS diamond core (PQ and HQ) was sampled by taking a 15-20mm fillet at 1m intervals within the pegmatite zones. NQ was cut and sampled as half-core. Dakota RC samples were sampled every metre and collected using a rig-mounted cyclone splitter including a dust suppression system. Approximately 85% of the RC chips were split to 600mm x 900mm green plastic mining bags for storage and logging and 15% was captured at the sample port in draw-string calico sample bags. Diamond holes were PQ core and were twins of RC holes drilled for metallurgical purposes. Half core was used for metallurgical testwork, whilst quarter core was used for assaying. PLS RC holes were sampled every metre, with samples split on the rig using a cyclone splitter and dust suppression system. The cyclone splitter was configured to split the cuttings at 85% to waste (to be captured in 600mm x 900mm green plastic mining bags) and 15% to the sample port in draw-string calico sample bags (10-inch by 14-inch). Altura Drilling sampled RC holes on 1m intervals from the beginning to end of each hole. Each 1m sample was split directly using a rigmounted riffle splitter and then collected into a uniquely numbered calico bag. The remaining material for each 1m interval was collected directly off the cyclone into a numbered plastic bag and kept near the drill site for geological logging.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain	 Talison/GAM holes are all RC, with samples split at the rig sent to the Wodgina site laboratory and analysed by XRF for a suite of 36 elements. Selected pulps from the 2008 and 2010 drilling plus all pegmatite pulps from the 2012 drilling were collected and sent to SGS Laboratories in Perth for analysis of their lithium content. Lithium analysis was

Criteria	JORC Code explanation	Commentary
	1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	 conducted by Atomic Absorption Spectroscopy (AAS). PLS RC samples were split at the rig and sent to the Nagrom laboratory in Perth and analysed by XRF and ICP. PLS Diamond core was cut at Nagrom (2015) and IMO (2016), and then crushed and pulverised in preparation for analysis by XRF and ICP. All Dakota RC 1m split samples were sent to Nagrom laboratory in Perth and analysed using ICP for 5 elements (Li2O, Cs, Be, Fe and Ta) Quarter core samples were sent to SGS in Perth for analysis using XRF and ICP techniques for a suite of elements. Exploration drill holes in 2021 were all RC, with samples split at the rig, samples are then sent to Nagrom laboratory in Perth and analysed for a suite of multi-elements. Analysis was completed by XRF and ICP techniques. Exploration RC samples on 1m intervals from Altura were split at the rig and then sent to either LabWest or SGS laboratories for analysis by XRF and ICP techniques. Diamond core from Altura was cut, sample lengths were determined by mineralisation logged in the core. Half core samples through
Drilling techniques	Drill type (e.g. core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face- sampling bit or other type, whether core is oriented and if so, by what method, etc).	 mineralised zones were sent to the laboratory for analysis. The drilling rig used in 2008 is not noted in any reports. The 2010 drilling was completed by Australian Drilling Solutions using an Atlas Copco Explorac 220 RC truck mounted drill rig with a compressor rated to 350psi / 1200cfm and a booster rated to 800psi, with an expected 600psi down-hole. An auxiliary booster/compressor was not required at any point during the drilling. The 2012 drilling was completed by McKay Drilling using an 8x8 Mercedes Truck-mounted Schramm T685WS rig with a Foremost automated rod-handler system and on-board compressor rated to 1,350cfm/500psi with an auxiliary booster mounted on a further 8x8

Criteria	JORC Code explanation	Commentary
		 Mercedes truck and rated at 900cfm/350psi. Drilling used a reverse circulation face sampling hammer. The sampling system consisted of a trailer mounted cyclone with cone splitter and dust suppression system. The PLS 2014 drilling was completed by Quality Drilling Services (QDS Kalgoorlie) using a track mounted Schramm T450 RC rig with a 6x6 truck mounted auxiliary booster & compressor. Drilling used a reverse circulation face sampling hammer with nominal 51/4" bit. The system delivered approximately 1800cfm @ 650-700psi down hole whilst drilling. The 2015 RC drilling was undertaken by Orbit Drilling (200 holes), Mt Magnet Drilling (44 holes) and Strike Drilling (11 holes). Orbit used two track mounted rigs; a Schramm T450 RC Rig, and a bigger Hydco 350 RC Rig. Mt Magnet also used a track mounted Schramm T450 RC Rig; Strike drilling used an Atlas Copco X350 RC Rig mounted on a VD3000 Morooka rubber track base with additional track mounted booster & auxiliary compressor. Diamond drilling during 2015 was completed by Orbit Drilling, using a truck mounted Hydco 1200H rig, drilling HQ sized core. The 2016 resource RC drilling was completed by 4 track mounted RC rigs & 2 diamond rigs. 2 Atlas Copco X350 RC rig mounted on a rubber track mounted booster & auxiliary compressor. Diamond drilling during 2015 was completed by 4 track mounted RC rigs as 2 diamond rigs. 2 Atlas Copco X350 RC rigs mounted on a rubber track mounted booster & auxiliary compressor. 2 track mounted RC rigs were also used by Mt Magnet Drilling, a Schramm T450 rig and a UDR250 rig. Diamond drilling during 2016 was completed by 2 Mt Magnet Drilling rigs drilling a combination of PQ, HQ & NQ size core. A truck mounted Hydco 650 rig and support truck and a TR1000 track mounted rig & track mounted support vehicle was used.

Criteria	JORC Code explanation	Commentary
		 Dakota RC Drilling was predominantly reverse circulation drilling with 2 diamond drillholes. Holes range in dip from approximately 60° to vertical. Average depth of drilling is 85 m and ranging from 16 to 206 m. RC drilling was undertaken by two drilling companies; Mount Magnet Drilling using a track-mounted rig (Schramm T450) and compressor (rated 1,350 cfm/800 psi) and 6WD support truck. The drill rig utilised a reverse circulation face sampling hammer, with 138mm bit. The sampling was conducted using a rig-mounted cyclone with cone splitter and dust suppression system. Strike Drilling, using a truck-mounted KWL700 RC rig, which used a rigmounted cyclone and cone splitter, and dust suppression system. RC Drilling in 2018 was completed by Strike Drilling Pty Ltd using a KWL1000 truck mounted rig and Mt Magnet Drilling Pty Ltd using an RC300 track mounted Schramm drill rig. Drilling used a reverse circulation face sampling hammer. The sampling system consisted of a rig mounted cyclone with cone splitter and dust suppression system. Exploration RC Drilling in 2021 was completed by Mt Magnet Drilling utilising an RCD300-2 track mounted drilling rig with a truck mounted booster & auxiliary compressor (900cfm/350psi) coupled to a V8 booster up to 1000psi. Drilling used a reverse circulation face sampling hammer. The sampling hammer. The sampling system consisted of a rig mounted cyclone with cone splitter and dust suppression system. Altura drilling between 2010 and 2013 included both RC and diamond holes. Drilling was completed using a PRD2000 multipurpose rig rated at 1120 cfm @350 psi. In 2016 9 diamond holes were drilled to twin RC holes. This was undertaken by DDH1 using a Sandvik UDR 1200 (PQ3 size core), truck mounted rig. RC drilling in 2016 was undertaken by Strike Drilling with a RC450 Hydco track mounted rig as well as a MP1300 multipurpose truck mounted rig.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	 Recoveries for the majority of the historical holes are not known, while recoveries for 2012 GAM holes were overwhelmingly logged as "good." Recoveries for PLS RC and diamond holes were virtually all dry and overwhelmingly logged as "good." Recoveries for Dakota RC and diamond holes were recorded as "good" by the geologist. Altura RC Holes were mostly recorded as "Dry" by the geologist. Sample recovery in 2021 was recorded as good for all RC holes.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	 Whilst drilling through the pegmatite, rods were flushed with air after each metre drilled for GAM and PLS holes; and after every 6m for Dakota holes. In addition, moist or wet ground conditions resulted in the cyclone being washed out between each sample run. Loss of fines as dust was reduced by injecting water into the sample pipe before it reached the cyclone. This minimises the possibility of a positive bias whereby fines are lost, and heavier, tantalum bearing material, is retained.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	 No material bias has been identified. The assay results of duplicate RC and paired DD hole samples do not show sample bias caused by a significant loss of/gain in lithium values caused by loss of fines.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	 Im samples were laid out in lines of 20 or 30 samples with cuttings collected and geologically logged for each interval and stored in 20 compartment plastic rock-chip trays with hole numbers and depth intervals marked (one compartment per Im). Geological logging information was recorded directly onto digital logging system and information validated and transferred electronically to Database administrators in Perth. The rock-chip trays are stored on site at Pilgangoora in a secured containerised racking library.

Criteria	JORC Code explanation	Commentary
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	 Im samples were laid out in lines of 20 or 30 samples with cuttings collected and geologically logged for each interval and stored in 20 compartment plastic rock-chip trays with hole numbers and depth intervals marked (one compartment per 1m). Geological logging information was recorded directly onto digital logging system (OCRIS) and information validated and transferred electronically to Database administrators in Perth. The rock-chip trays are stored on site at Pilgangoora in a shelved 40 ft sea container. PLS Diamond core was transported to Nagrom laboratories for cutting, sampling and detailed logging in 2015. During the 2016 drilling program diamond core was logged in detail on site & dispatched to ALS laboratories in Perth for cutting, sampling & assaying. During the 2017 PQ drilling program diamond core was logged in detail and cut on site & the filleted samples were sent to Nagrom in Perth for analysis. Some of remnant core is also stored at Nagrom, the remainder on site at Pilgangoora. All remnant drill core (excluding 2019 PQ core) is currently stored on pallets at Pilgangoora and is in the process of being transferred into a covered storage facility.
	The total length and percentage of the relevant intersections logged.	• The database contains lithological data for all holes in the database.
Sub-sampling	If core, whether cut or sawn and whether	RC samples collected by Talison/GAM were generally dry and split at the
techniques and	quarter, half or all core taken.	rig using a cyclone splitter.
sample	If non-core, whether riffled, tube sampled,	RC samples collected by PLS, Dakota and Altura were virtually all dry
preparation	rotary split, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation	 and split at the rig using a cone splitter mounted directly beneath the cyclone. A 15 to 20mm fillet of core was taken every metre of PQ or HQ core. NQ core was halved.
	technique.	

Criteria	JORC Code explanation	Commentary
		 Dakota drilled PQ sized diamond holes, and cut and sampled half core for metallurgical tests, and quarter core for assaying. All 2017-2019 drill core was cut and sampled at the core logging facility at Pilgangoora. RC samples in 2021 were generally dry and split at the rig using a cyclone splitter, which is appropriate and industry standard. Altura HQ sized diamond holes, and cut and sampled half core for assaying
	Quality control procedures adopted for all sub- sampling stages to maximise representivity of samples.	 Talison/GAM/PLS samples have field duplicates as well as laboratory splits and repeats. Similarly, 238 sample pulps were collected to check ALS Laboratory results by Nagrom in 2016. 55 Dakota GAM Wodgina laboratory splits of the samples were taken at twenty metre intervals with a repeat/duplicate analysis also occurring every 20m and offset to the lab splits by 10 samples. In total one field duplicate series, one splits series and one lab duplicate/repeat series were used for quality control purposes assessing different stages in the sampling process. This methodology was used for the samples from the 2010 and 2012 drilling programs. Comparison of these splits and duplicates by using a scatter chart to compare results show the expected strong linear relationship reflecting the strong repeatability of the analysis process. The GAM and PLS RC drilling contains QC samples (field duplicates and laboratory pulp splits, GAM internal standard, selected CRM's for PLS), and have produced results deemed acceptable. 110 sample pulps (10% of the June 2015 resource composite samples) were selected from across the pegmatite zones for umpire checks with ALS Laboratory Perth. 238 sample pulps from the 2016 drilling were selected from across the pegmatite zones for umpire checks with

Criteria	JORC Code explanation	Commentary
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.	 Nagrom. All closely correlated with the original assays. Dakota field RC duplicates, pulp duplicates and coarse diamond field duplicates generally indicate good repeatability of samples. Samples were selected from pegmatite pulps for re-assaying by ALS (original lab was Nagrom) and were also resampled and sent to ALS for analysis. QAQC has been maintained regularly on the Nagrom results from the 2017-2021 drilling, with duplicates and standards showing consistent precision and accuracy. The majority of the Altura exploration drilling was undertaken at LabWest. 153 samples from 7 holes were submitted to Ultratrace for umpire checks. Results were comparable, with a slight bias towards the Ultratrace results. Altura P17 and P18 series holes were sent to SGS for analysis. QC of standards and field duplicates returned results within acceptable ranges. 774 samples were sent to Intertek for umpire checks, with good correlation noted for Li₂O and Fe₂O₃. For the Talison/GAM/PLS RC drilling, field duplicates as well as laboratory splits and repeats. PLS diamond holes have laboratory splits and repeats. Duplicates from diamond core, and coarse crushed diamond core duplicates. For all PLS holes from 2016 to 2021 field duplicates were taken approximately every 20m, and standards and blanks every 50 samples.

Criteria	JORC Code explanation	Commentary
		• Altura submitted duplicates approximately every 15m, and standards every 50m.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	• Drilling sample sizes are considered to be appropriate to correctly represent the tantalum and lithium mineralization at Pilgangoora based on the style of mineralization (pegmatite) and the thickness and consistency of mineralization.
Quality of assay data and laboratory tests	assaying and laboratory procedures used and	 The Talison/GAM samples were assayed by the Wodgina Laboratory, for a 36 element suite using XRF on fused beads. During late 2014 &2015 the PLS samples were assayed at the Nagrom Perth laboratory, using XRF on fused beads plus ICP to determine Li2O, ThO2 and U3O8. All the 2016 the PLS samples were assayed by ALS laboratories in Perth using a Sodium Peroxide fusion with ICPMS finish. Dakota RC samples were assayed at Nagrom's laboratory in Perth, for a 5 element suite using XRF with a sodium peroxide fusion, and total acid digestion with an ICP-MS finish. Diamond drill samples were assayed at SGS's laboratory in Perth, for a 19 element suite using XRF with a sodium peroxide fusion, and total acid digestion with an ICP-MS finish. Since 2017, PLS samples were assayed by Nagrom Perth laboratory and analysed for a suite of 9 elements via ME-MS91 Sodium Peroxide for ICPMS finish and Peroxide fusion with an ME-ICP89 ICPAES finish. In 2021, samples were submitted to Nagrom Laboratories in Perth and analysed for a suite of 25 elements. Samples were subject to a sodium peroxide fusion and analysed using ICPOES and ICPMS techniques. Altura PRC prefix holes were submitted to LabWest and analysed by total acid digestion with an ICP-MS finish. Altura 17P and 18P series holes were submitted to SGS and analysed for a suite of 9 elements by Borate Fusion with XRF, and Sodium Peroxide Fusion with ICP-AES finish.

Criteria	JORC Code explanation	Commentary
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	 No geophysical tools were used to determine any element concentrations used in this resource estimate.
	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	 Duplicates of the samples were taken at twenty metre intervals with blanks and standards inserted every 50m. Comparison of duplicates by using a scatter chart to compare results show the expected strong linear relationship reflecting the strong repeatability of the sampling and analysis process. Drilling contains QC samples (field duplicates, blanks and standards plus laboratory pulp splits, and laboratory internal standards), and have produced results deemed acceptable.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes.	 Infill drilling completed by GAM in 2012 and PLS in 2014 to 2016 confirmed the approximate width and grade of previous drilling. Eight of the diamond holes were drilled as twins to RC holes, and compared to verify assays and lithology during 2015. An additional 8 diamond holes were drilled as twins to RC holes to verify assays & lithology during 2016. The remainder were drilled for metallurgical or geotechnical testwork. Dakota drilled two twin RC/DDH holes which show good constancy of mineralisation. A number of the 2017 PQ diamond core holes were also drilled as twin holes to verify results from RC drilling. Results compare favorably. Additional PQ drilling was undertaken in 2019, with some holes drilled as twins. Results compare favorably.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	• An electronic relational database containing collars, surveys, assays and geology is maintained by Trepanier Pty Ltd, an Independent Geological consultancy.

Criteria	JORC Code explanation	Commentary
	Discuss any adjustment to assay data.	 Tantalum was reported as Ta₂O₅ % and converted to ppm for the estimation process. A two-step adjustment has been applied to the Fe₂O₃ assays to account for (i) contamination of pulps by the steel bowl at the grinding stage, and (ii) contamination of RC chips with the drill bit and tube wear with increasing hole depth. Step one is to subtract 0.33% from all Nagrom Fe₂O₃ assays and 0.47% from all ALS Fe₂O₃ assays, step 2 is to subtract a regressed factor by depth from all PLS Minerals, Altura and historic RC samples. No second factor has been applied to the PLS or Altura diamond core Fe₂O₃ assays. For Dakota assays Li₂O was used for the purposes of reporting, as reported by NAGROM and SGS. Ta was adjusted to Ta₂O₅ by multiplying by 1.2211. Fe was adjusted to Fe₂O₃ by multiplying by 1.4297. Fe₂O₃ values were adjusted by subtracting 0.52% Fe₂O₃ from all RC samples, which is the total correction factor for contamination caused by steel RC drill bits and pulverising the samples in steel bowls.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	 Talison/GAM holes were surveyed using a DGPS with sub one metre accuracy by the GAM survey department. PLS drill hole collar locations were surveyed at the end of the program using a dual channel DGPS with +/- 10cm accuracy on northing, easting & RL by PLS personnel. No down hole surveys were completed for PLC001-039 (Talison). Gyro surveys were completed every 5m down hole for PLC040-068 (Talison). Eastman Single Shot surveys were completed in a stainless steel starter rod approximately every 30m for PLC069-076 & PLRC001-009 (GAM). Reflex EZ-shot, electronic single shot camera surveys were completed in a stainless steel starter rod for each hole for the PLS November-December 2014 RC drilling completed by QDS Drilling. Reflex instruments were also used by Mt Magnet Drilling for the PLS RC and

Criteria	JORC Code explanation	Commentary
		 diamond drilling completed in 2015 and 2016. Measurements were recorded at 10m, 40m, 70m and 100m (or EOH) for each hole. Camteq Proshot, electronic single shot cameras were completed in a stainless steel starter rod for each hole from the PLS 2015 RC and diamond drilling campaigns completed by Orbit drilling. Camteq down hole survey equipment was also used for each hole for the PLS RC drilling by Strike. Measurements were recorded at 10m, 40m, 70m and 100m (or EOH) for each hole. Downhole survey information was also collected using a KEEPER High-Speed Gyro Survey/Steering System Gyro instrument for selected RC and diamond holes completed in 2016. This included surveying a number of holes as an audit on the single shot surveys which compared well. For the Dakota drilling, the drill-hole locations were located using a Navcom 3040 Real time GPS, with an accuracy of +/- 10 cm vertical and +/-5 cm horizontal. Down hole surveying of drill holes was conducted roughly every 30m using a Reflex multi-shot camera to determine the true dip and azimuth of each hole. Subsequently, more detailed down hole surveying was conducted to verify this data, using a High Speed True North Seeking Keeper Gyroscope. All 2021 RC holes were surveyed using DGPS in GDA94, Zone 50. Down hole surveying of drill holes and continuous readings for angle holes. Drill hole collar locations were surveyed at the end of each program by a differential GPS (DGPS).

Criteria	JORC Code explanation	Commentary
	Specification of the grid system used.	• The grid used was MGA (GDA94, Zone 50)
	Quality and adequacy of topographic control.	 The topographic surface used was supplied by Pilbara Minerals. Drone surveys are undertaken on a monthly basis in the active mining area and this information is merged into a master topographic surface.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	 Drilling spacings within the resource area vary between 12.5m to 200m apart. Drilling spacings for the 2021 exploration RC holes varied between 50m to 75m apart.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	• The interpretation of the mineralised domains is supported by a moderate drill spacing, plus both geological zones and assay grades can be interpreted with confidence.
	Whether sample compositing has been applied.	 No compositing was necessary, as all samples were taken at 1m intervals.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	 The mineralisation dips between 20 and 60 degrees at a dip direction between 050 and 115 degrees for the majority of the domains. The Monster zone strikes 040 to 045 degrees and dips moderately to the south-east. In the Lynas area the pegmatite varies between horizontal and 50-degree dip towards the south and south-east. The drilling orientation and the intersection angles are deemed appropriate.

Criteria	JORC Code explanation	Commentary
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	 No orientation-based sampling bias has been identified.
Sample security	The measures taken to ensure sample security.	Chain of custody for PLS holes were managed by PLS personnel.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	 The collar and assay data have been reviewed by compiling a SQL relational database. This allowed some minor sample numbering discrepancies to be identified and amended. Drilling locations and survey orientations have been checked visually in 3 dimensions and found to be consistent. All GAM assays were sourced directly from the laboratory (Wodgina laboratory). It has not been possible to check these original digital assay files. Sampling techniques for historical assays including Altura Lithium Operations Limited have not been audited. The collar and assay data have been reviewed by checking all of the data in the digital database against hard copy logs. All PLS assays were sourced directly from Nagrom laboratory.



Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites	 PLS owns 100% of mining tenements M45/1256, M45/333, M45/511, M45/1266, M45/1230 and M45/1231. The Pilgangoora resource (including former Altura Lithium Operations) is located within M45/1256, M45/333, M45/1230 and M45/1231 which are 100% owned by PLS Minerals Limited. The Lynas Find resource is located within M45/1266.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	 Talison completed RC holes in 2008 GAM completed RC holes between 2010 and 2012. Dakota Minerals Ltd completed diamond and RC holes in 2016. Altura completed Diamond and RC holes between 2010 and 2018. Altura completed two phases of diamond drilling (phase 1 2011-2013 & phase 2 2016) with a total of 18 holes drilled
Geology	Deposit type, geological setting and style of mineralisation.	 The Pilgangoora pegmatites are part of the later stages of intrusion of Archaean granitic batholiths into Archaean metagabbros and metavolcanics. Tantalum mineralisation occurs in zoned pegmatites that have intruded a sheared metagabbro.

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes, including easting and northing of the drill hole collar, elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar, dip and azimuth of the hole, down hole length and interception depth plus hole length. If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	 RC drilling undertaken in 2021 has been previously reported in ASX announcements on 10 May 2021, 23 June 2021 and 28 July 2021. Exploration RC drill holes completed In the September quarter 2021 are listed in APPENDIX 1. All PLS drill hole information pre 2021 has been previously reported.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. The assumptions used for any reporting of metal equivalent values should be clearly stated.	 Length weighted averages used for exploration results. Cutting of high grades was not applied in the reporting of intercepts in APPENDIX 2. No metal equivalent values are used.

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	• Down hole intercepts for all results received in the September quarter 2021 have been reported and are tabled in APPENDIX 2. Reported intercepts are not true width.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	 Annexure A shows the location of drill holes completed during the September quarter. Cross Sections representing the style of mineralization and orientation of pegmatite domains intercepted along the Southern Corridor have been previously reported in ASX announcements on 10 May 2021, 23 June 2021 and 28 July 2021, 6 September 2021 and 6 October 2021.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	 Comprehensive reporting of 2021 drill hole details have been previously reported in ASX announcements on 10 May 2021, 23 June 2021 and 28 July 2021. The balance of remaining results has been included as APPENDIX 2 in this release.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	 All meaningful & material exploration data has been reported.

Criteria	JORC Code explanation	Commentary
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Further planned drilling aims to test extensions to the currently modelled pegmatites zones and to infill where required to convert Mineral Resources to high confidence classification (i.e. Inferred to Indicated and Indicated to Measured).