Pilbara Minerals
...Powering a Sustainable Energy Future

ASX / MEDIA ANNOUNCEMENT 13 NOVEMBER 2019

STRONG RECOVERY PERFORMANCE

Recent plant modifications achieve substantial uplift in lithia recovery from the Pilgangoora process plant

HIGHLIGHTS

- Previously announced plant modifications largely complete and commissioned with optimisation underway as part of the current plant production run.
- Initial recovery[1] results in line with expectations, with a substantial uplift in recovery performance (while maintaining high concentrate grades) following initial optimisation:
  - 60% lithia recovery achieved for the December quarter-to-date, inclusive of commissioning, optimisation and ramp-up/down periods (which generate lower recoveries); and
  - 66%-71% lithia recovery range and average 68.5% lithia recovery demonstrated between 6 - 10 of November during steady-state production, prior to operations being temporarily suspended (as per ASX announcement 11 November).
- Further recovery optimisation expected over the coming quarters as the moderated production strategy continues.
- As previously outlined, recovery performance is a key contributor to unit cost reductions and Pilbara Minerals is targeting cash operating costs[2] of USD$320 - $350/dmt CFR China (SC6.0 basis) from June 2020 once steady-state nameplate recovery (and full production volumes) are sustained.

Pilbara Minerals Limited ("**Pilbara Minerals or the Company**") (ASX: PLS) is pleased to report continued improved performance at the Pilgangoora Lithium-Tantalum Project's (Pilgangoora Project) processing facilities, where recovery performance is progressing as planned following completion and commissioning of key plant modifications. These included, but were not limited to:

- **Grind size optimisation, prior to flotation;**
  - The classification process for ore sizing ("grind size") pre-flotation is an important contributor to float performance (and therefore overall fines lithia recovery). Absolute grind size and any variability in grind size should be controlled within relatively tight parameters to maximise float performance. The introduction of additional plant controls (including some automation) and continued plant surveys are now contributing to further grind size control, and therefore improved flotation performance. Grind size will

[1] Unreconciled daily lithia recovery, with final recovery results subject to end-of-month survey reconciliation.
[2] Cash production costs are inclusive of mine production and admin costs, logistics, sea freight, State and Native Title Royalties and are net of by-product credits and assume full plant utilisation.

continue to be optimised for different ore feed types as the mine development progresses, moving through the ore body during the life of the mine.

- **Free iron removal, pre- and post-flotation;**
  - LIMS – Installation of additional LIMS (low intensity magnetic separation drums), with their primary purpose being removal of introduced iron arising from wear within the plant itself (and mainly from the ball milling circuit). The installation is now complete and commissioned and is performing well.
  - WHIMS – Installation of controls for improved operation of WHIMS (wet high intensity magnetic separation) iron removal equipment has been completed.
- **Overall plant control and automation**
  - Further work to provide additional monitoring and control loops to assist in the stability and control of the plant during operations. While this package is ongoing, further improvement in plant stability and control is already evident and contributing to improved recovery performance.

These important initiatives (amongst others that are still in progress) have delivered a significant improvement in lithia recovery, consistent with the Company's expectations arising out of this work and an improved understanding of the operating criteria driving plant performance.

This has resulted in overall recovery improving to ~60% lithia for the December quarter-to-date, inclusive of the plant ramp-up (and ramp-down) periods, commissioning and the plant's ongoing optimisation, while still producing a high-grade spodumene concentrate (6% Li_2O).

Further, following completion of the commissioning period for the recently installed new equipment and with ongoing optimisation, recoveries have continued to improve to 66-71% during steady-state production in the 5-day period between 6 and 10 November (averaging 68.5% recovery), as additional plant stability initiatives continue to improve plant performance.

The Company anticipates that with further plant optimisation and operating time, product recoveries will continue to improve with design recoveries targeted to be in the range of 72-78% lithia by June 2020, with the ultimate recovery in that range being dependent on the mineral properties of the feed ore at the time.

As previously flagged, plant recovery is a key contributor to achieving unit operating cost reductions at the Pilgangoora Project. These recent results, together with those anticipated from further plant improvements and the additional plant stability initiatives and other site optimisation works to be undertaken over the coming months, should see cash operating costs normalise over the following two to three quarters.

Unit costs are expected to trend towards US$320-350/dmt CFR China (SC6.0 basis) once design plant production capacity is able to be consistently achieved.

Pilbara Minerals' Managing Director, Ken Brinsden, said the ongoing plant improvement works were already delivering tangible benefits and making a strong contribution to improved recovery performance:

"Pilbara Minerals has built, commissioned and ramped-up the first substantial wholly-integrated lithia flotation facility since Greenbushes. With all new facilities come challenges during the commissioning and ramp-up stage. These recent results are a credit to the skill and perseverance of Pilbara Minerals' team and demonstrate just how far we have come.

"With these recent plant modifications we have taken a significant leap forward in terms of plant recovery rates, which of course is a key contributor to unit cost reduction. As a result, we are expecting a step-down in cash operating costs in the coming quarters.

"While lithium market conditions remain difficult in the near-term, we are well placed to match production to customer demand and establish lower unit operating costs while the plant is producing."

CONTACTS

Investors / shareholders
Ken Brinsden
Managing Director and CEO
Ph. +61 (0)8 6266 6266

Media
Nicholas Read
Read Corporate
Ph. +61 (0)8 9388 1474

MORE INFORMATION

ABOUT PILBARA MINERALS

Pilbara Minerals is an Australian lithium-tantalum producer and a top-200 company on the Australian Securities Exchange (ASX: PLS). Through the development of its 100% owned, Pilgangoora Lithium-Tantalum Project (Pilgangoora Project), the Company is positioned to become a major player in the world's rapidly growing lithium supply chain, underpinned by the electric vehicle and energy storage markets.

Located in Western Australia's resource rich Pilbara region, the Pilgangoora Project hosts one of the world's largest hard rock lithium-tantalum deposits and is recognised as one of the most important new sources of lithium raw materials globally. The Pilgangoora Project's significant scale and outstanding quality has not only resulted in a remarkable development timeline, with Pilbara Minerals having progressed it from first drill hole to production in under four years, but also attracted a consortium of high quality global partners including Ganfeng Lithium, General Lithium, Great Wall Motor Company, POSCO and CATL.

Now that production is well underway, Pilbara Minerals is focused on an expansion and diversification strategy to become one of the biggest and lowest cost lithium producers, and a fully integrated lithium raw materials and chemicals supplier in the years to come.