



## Update on Pilot Plant and Offtake

### Highlights

- Pilot plant operation scheduled for Q4 2020
- Combined operations at ALS Global Hydrometallurgy Centre of Excellence and CSIRO Minerals
- Potential offtakers have expressed interest purchasing nickel quantities exceeding production levels contemplated in PFS
- First samples of nickel-cobalt mixed hydroxide precipitate (MHP) to be provided to potential offtakers during Q4, with nickel sulfate and cobalt sulfate samples to be provided shortly thereafter

Pure Minerals Limited (ASX:PM1) ("**PM1**" or "the **Company**") is pleased to provide an update on activities for its wholly owned subsidiary Queensland Pacific Metals Pty Ltd ("**QPM**").

### Pilot Plant Activities

QPM has commenced an operating strategy for pilot plant trials for its TECH Project. In this strategy, pilot plant operations commence in Q4 2020 with nickel-cobalt mixed hydroxide precipitate ("**MHP**") and other intermediate products being produced before the end of the calendar year. Subsequent piloting to refine these products into battery chemicals nickel sulfate, cobalt sulfate and 4N high purity alumina ("**HPA**") is scheduled to take place early in the new year.

The TECH Project operates in two Stages:

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|-----------------|--|
| <b>Stage 1:</b> | Direct Nickel (" <b>DNI</b> ") processing flowsheet which produces MHP, aluminium hydroxide and saleable haematite |
| <b>Stage 2:</b> | Refining of MHP to nickel sulfate and cobalt sulfate +<br>Refining of aluminium hydroxide to 4N HPA                |

QPM had planned to use the existing DNI pilot plant owned by the CSIRO for Stage 1. This included making beneficial flowsheet modifications (as previously established in the Pre-Feasibility Study ("**PFS**") - refer to ASX announcement 7<sup>th</sup> April 2020). In addition to these changes, refurbishment of a number of areas of the existing pilot plant was also required.

Design and costing of the CSIRO pilot plant modifications was delayed due to COVID-19 restrictions. Once that design work was complete, QPM ran a tender process for the various work streams. The results showed that, both from a cost and more importantly, schedule perspective, that the newly established ALS Global Hydrometallurgy Centre of Excellence was the best location for the Stage 1

piloting. Because the majority of standard components required to assemble the Pilot Plant already existed within ALS' facilities, ALS have been able to offer QPM an attractive plan (cost and expertise) to build and operate the bespoke Pilot Plant in a short period of time. This revised plan reduces COVID-19 related schedule delays.

QPM have now entered into an agreement with ALS Global ("**ALS**") to assemble and operate the pilot plant ("**ALS Pilot Plant**"). Works have commenced and the bulk ore sample has been prepared, ready for processing in the Oct-Dec quarter.

As part of the operation of the pilot plant, QPM will assemble an owner's team to assist and work with ALS Global. CSIRO experts will continue to support the pilot plant operation by provision of staff to work with ALS Global and QPM. These CSIRO staff were directly involved with the DNI prior pilot plant operations and, to maximise continuity, will be embedded in the Pilot Plant team. The products from the piloting will be transferred to CSIRO for the Stage 2 laboratory and piloting works.

With Stage 1 piloting works underway, preparation of the Stage 2 refining steps will also commence at CSIRO so that the production of high purity, lithium-ion battery grade nickel sulfate and cobalt sulfate can take place using the MHP produced in Stage 1.

Stage 1 piloting will also produce additional high grade haematite product required for collaborative works between QPM and Sun Metals (refer to ASX announcement 27 July 2020).

## Offtake Discussions and Project Timetable

Whilst there has been a delay to the commencement of piloting works from the previously announced schedule, QPM is pleased that there is now a tangible path forward that has reduced costs and minimised COVID-related delays. This path retains the required technical standards so that the results of piloting can feed directly into a bankable feasibility study ("**BFS**").

In parallel with pilot plant activities, QPM has had discussions with numerous end users seeking MHP, nickel sulfate and cobalt sulfate. Discussions have centred around offtake, but also include project involvement either by investment or project partnership.

As part of the PFS, the nickel sulfate to be produced by the TECH Project will contain approximately 5,900 tonnes of nickel metal. Multiple parties in discussions with QPM have expressed a desire for nickel quantities from TECH which well-exceed this amount. They have asked QPM to evaluate the ability to increase the scale of the TECH Project to meet this demand (note that the ore supply agreement enables a doubling of TECH without agreement renegotiation). All parties also wish to receive samples of product from pilot plant trials.

These discussions have reinforced to QPM the attractiveness of the TECH project and the anticipated demand growth for nickel sulfate and Class 1 nickel. These products are required to manufacture battery precursor chemicals in order to meet the expected growth in battery manufacturing and the electric vehicle sector.



Prior to commencement of a BFS, QPM will lock down the scale of the TECH Project. An increase in scale of the TECH Project should deliver the following:

- Improved project economics with higher revenue and lower unit costs (arising from economies of scale); and
- Improved attractiveness to offtakers and strategic partners by way of being able to meet their demand for nickel.

Whilst the TECH project is easily scalable, QPM is also aware that capex and ability to obtain project funding must be considered. We will continue to advance discussions with various parties with the view of securing offtakers and project partnerships or investment. QPM wants to ensure that the TECH Project is scaled appropriately to be attractive to any potential partners. As such, QPM will provide an updated timetable for the project once this decision has been made.

**Chief Executive Officer Stephen Grocott commented:**

*“In my short time with the company, good progress has been made both with respect to technical advancement of the project and discussions with potential offtakers. I am very pleased that we have a clear path forward for the piloting and am especially delighted with the involvement of both ALS Global and the CSIRO, two outstanding organisations with which I have worked extensively.*

*“Prior to joining Pure Minerals, I was a believer in the fundamentals driving the anticipated demand growth for battery chemicals. Our recent discussions with potential offtakers and investors have increased this view. I am pleased that the TECH Project and DNi technology can form part of the new nickel supply required to meet this demand.”*

***This announcement has been authorised for release by the Board.***

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