Overview of Process Development of the Altura Pilgangoora Lithium Project

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ABSTRACT

Altura Mining owns and operates the Pilgangoora Lithium mine, situated close to Port Hedland in Western Australia. Construction began in 2017 with mining and processing commencing in 2018. The plant is currently ramping up to design rate of 1.54Mtpa and Altura announced achieving commercial production on the 13th of March 2019. Design concentrate production from dense media separation (DMS) and flotation is 230,000tpa with concentrate exported from Port Hedland to China.

Altura and DRA Global worked together in all aspects of project development, including: testwork, process selection, detailed design, equipment supply and recently plant commissioning. DRA is a global engineering company with a Perth office.

This presentation provides an overview of process development and flowsheet selection from the early study stages up to the DFS when the design was finalised and includes comparisons between design and early operation. The DFS identified numerous risks with previous designs and in conjunction with extensive testwork conducted during the DFS, changes to the design were made. The main areas covered in this presentation are outlined below:

- Crushing Plant – Earlier design used 4-stages of crushing and dry screening at 3.35mm with a large crushed ore stockpile, final design used 2-stages of crushing with a smaller crushed ore bin, feeding a HPGR with wet screening to generate 6x1mm and -1mm products.
- DMS – Earlier design used 3-stages of DMS plants treating 3.35x0.5mm fines fraction, while the final design used 2-stages of “off the shelf” DRA DMS plants treating the 6x1mm.
- Flotation – Earlier flotation plant design was modified in the DFS mainly through use of RO water and a different reagent scheme.
- Process Water - Earlier design combined both DMS and flotation process water circuits, while final design separated these circuits with separate tails thickeners.