

25 October 2018

The Manager Companies  
ASX Limited  
20 Bridge Street  
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(6 pages by email)

**REPORT ON ACTIVITIES FOR THE QUARTER ENDED**  
**30 SEPTEMBER 2018**  
**(ASX: CLL)**

**HIGHLIGHTS**

**HPA FIRST**

- **Successful HPA production using the 'HPA First' process.**
  - The first solvent extraction (SX) mini-rig run using the HPA First process (utilising readily available industrial chemical feedstock) successfully produced High Purity Alumina (HPA).
  - Assays confirmed a 4N (99.99%) HPA on an elemental basis.
  - X-Ray Diffraction (XRD) analysis also confirmed the HPA to have the desired alpha ( $\alpha$ ) crystal form.
- **The second SX mini-rig run and HPA production due for completion in October.**

**HPA PROJECT UPDATE**

- **The HPA First PFS engineering studies significantly advanced.**
  - On track for completion and delivery by late October 2018.
- **New premises established for the DFS pilot plant and the second SX mini-rig run.**
- **Orders placed for long lead items for the DFS pilot plant.**
- **Preliminary Environmental Assessment (PEA) commenced.**

**CORPORATE**

- **Rimas Kairaitis appointed as the Company's Managing Director.**
- **Completion of fully underwritten 1 for 10 rights issue at 8.0 cents per share to raise approximately \$4.0 million to advance the Company's HPA First PFS and pilot plant construction.**

## HPA FIRST – Fast Track to HPA Production

### Successful SX Mini-Rig Run

During the quarter the Company successfully completed its maiden solvent extraction (SX) mini-rig run using the industrial feedstock identified for the HPA First process. The mini-rig mimics the aluminium SX section of the intended commercial scale process, results from which provide valuable engineering data for improving and validating the design of the commercial facility. The mini-rig was run continuously over a 3.5 day period, achieving a maximum aluminium extraction of 69.4%, with this expected to increase for the second mini-rig run.

### HPA Production – 4N (99.99%) Purity and Alpha Crystal Structure Confirmed

The aluminium loaded solution generated from the SX mini-rig run was successfully refined into High Purity Alumina in three batches. The Company completed a comprehensive analytical program to evaluate the process where each batch was sent for purity, crystal form and sizing analysis. This process included multiple independent assay laboratories using a range of assay techniques, inclusive of assays for:

- the HPA;
- the HPA precursor/s; and
- the various process flows from the SX process.

This approach allowed for a comprehensive analysis of the final HPA product and of the SX process to identify if and where any impurities had been introduced and/or eliminated in the process.

Using the preferred assay technique, GDMS (Glow Discharge Mass Spectrometry), the HPA assays were confirmed as:

- 4N, or 99.99% purity, on an elemental basis; i.e. total impurities on an elemental basis are subtracted from 100%.
- 3N, or 99.97% purity, on an oxide basis; i.e. impurities are converted to oxides then subtracted from 100%.

Purity reported on an elemental basis is consistent with HPA purity disclosure by other parties, however the Company will seek to report HPA purity on a total oxide basis in future releases.



*Sample of High Purity Alumina generated from the HPA First process*

## Impurities

The HPA assay and SX process stream analysis identified the key impurities as sodium (Na), gallium (Ga), iron (Fe) and magnesium (Mg). The process stream assays indicated the sodium impurities were introduced as contamination in the HPA refining process and can be eradicated in the second SX and HPA refining run. The other impurities were inherited from the process feedstock and can be adjusted to further improve their rejection. On this basis, the Company believes that the HPA purity can be substantially improved in the second SX and HPA refining run.

## Crystal Form

In addition to purity, the HPA was also analysed by X-Ray Diffraction (XRD) which confirmed that the HPA was a 100% alpha ( $\alpha$ ) crystal form, the specification required by end-users in the production of sapphire glass and lithium ion battery separators.

Managing Director, Rimas Kairaitis, commented; *“To produce HPA at 4N purity on an elemental basis in the first test run of the new process is very pleasing, although we are targeting further improvements in purity in the next round of testwork. The thorough analysis of the final product and the process flows means the impurity levels are now well understood, and that we are well placed to improve the HPA purity in the next round of solvent extraction and HPA refining.”*

## Next Steps

The second SX mini-rig run, due to complete in October 2018, will generate a larger quantity of HPA and will employ a number of adjustments based on observations from the first run, which are expected to further improve HPA purity, increase the feedstock aluminium tenor.

Preparations have also commenced for the design and construction of a larger scale continuous pilot plant, which will follow the completion of the mini-rig testwork. The larger continuous pilot plant will form the testwork basis for the Definitive Feasibility Study (DFS) and provide engineering data to allow the detailed design of the commercial HPA production facility.

The Company has also commenced dialog with selected HPA end users, with a view to providing samples for indicative off-take terms.

## Pre-Feasibility Study (PFS) Update

The HPA First PFS remains on track for delivery in October 2018. Key study milestones achieved during the quarter included:

- Completion of Block Flow Diagram.
- Completion of Process Design Basis and Capacity Basis.
- Completion of Process Flow Diagrams.
- Indicative plant layout and 3D models.
- Operating and capital cost estimates issued for internal review.

Following the first successful SX mini-rig run and HPA production, a number of process refinements have been made for the second, larger mini-rig run.

## DFS Pilot Planning

During the quarter the Company identified dedicated, secure premises to complete the second mini-rig run as well as to house the pilot plant for the DFS.

A complete pilot plant equipment list has been generated and key long lead items ordered. The Company expects to transition into DFS piloting immediately on completion of the PFS study.

## Preliminary Environmental Assessment (PEA)

Consistent with Company's strategy to fast-track to HPA production, the Company has engaged permitting consultants AECOM and work has now commenced on the PEA, being the first step in the NSW permitting process. The PEA will be prepared on the basis of a production facility based in Newcastle, NSW, and is expected to be completed and submitted before the end of calendar 2018. The Company has also commenced discussions with third parties with a view to securing a commercial production site in Newcastle.

## Collerina Project Mineral Resource Estimate

During the quarter, the Company completed its annual review of Mineral Resources and Ore Reserves, including the additional drill data collected in 2017, and identified the requirements to bring the Homeville nickel-cobalt resource into JORC 2012 compliance. The Homeville Mineral Resource Estimate (MRE) update was completed by Optiro Consultants (Optiro), and reported below.

### Homeville JORC 2012 MRE

The updated JORC 2012 MRE, is presented at a 0.7% Ni cut-off and compared to the previous MRE as follows:

2011 MRE (JORC 2004)	Category	Cut Off Grade (Ni %)	Tonnes (Mt)	Ni %	Co %	Fe %	Al %
	Indicated	0.7	4.4	0.99	0.06	20	3.5
	Inferred	0.7	11.9	0.91	0.05	18	3
	<b>TOTAL</b>		<b>16.3</b>	<b>0.93</b>	<b>0.05</b>	<b>19</b>	<b>3.1</b>
2018 MRE (JORC 2012)	Category	Cut Off Grade (Ni %)	Tonnes (Mt)	Ni %	Co %	Fe %	Al %
	Indicated	0.7	2.2	0.98	0.04	19	2.8
	Inferred	0.7	15.7	0.88	0.06	23	3.7
	<b>TOTAL</b>		<b>17.9</b>	<b>0.89</b>	<b>0.06</b>	<b>22</b>	<b>3.6</b>

The 2012 JORC MRE, in comparison to the 2004 JORC MRE, represents:

- A 10% increase in total tonnes.
- A 50% decrease in indicated tonnes.
- A 4% decrease in Ni grade.
- An 11% increase in Co grade.
- A 15% increase in Al grade.

## WONOGIRI PROJECT - INDONESIA (Collerina Cobalt - 45%)

The Company is continuing advancement of its AMDAL study (environmental impact study) for the Randu Kuning gold-copper deposit. On acceptance of the AMDAL, the Company will be awarded a 20-year operation production IUP (with 10-year extension) for the Randu Kuning gold-copper deposit currently an AMDAL is also being undertaken for its planned aggregate operation adjacent to the Randu Kuning deposit. Upon approval the Company will be granted an initial 5 year aggregate operation licence, which can be extended for two additional 5 year terms.

## CORPORATE

### Change of Managing Director

During the quarter the Company announced that Mr Rimas Kairaitis had assumed the role of Managing Director, having served on the Board in the capacity of Technical Director since his appointment in November 2017. Mr Kairaitis replaces outgoing Managing Director Mr Justin Werner who will continue as a Non-Executive Director.

## Fully Underwritten Non-Renounceable Rights Issue

In early July 2018 the Company announced the launch of a fully underwritten, non-renounceable rights issue (Offer) to raise approximately \$4.0 million before costs of the Offer.

The Offer was made to eligible shareholders on the basis of 1 New Share for every 10 Existing Shares held, at an issue price of \$0.08 per New Share to Eligible Shareholders who were registered on the Company's share register at 5.00pm EST on 16 July 2018 (Record Date). The issue price represented a 26.6% discount to the 1 month volume weighted average price (VWAP) of 10.9 cents.

Bell Potter Securities Limited acted as Lead Manager and Underwriter to the Offer.

The Offer was completed in early August with 37,430,799 New Shares issued to Shareholders under the Offer. An additional 13,396,475 New Shares were issued through the underwriter of the Offer. Trading of New Shares issued under the offer commenced on 9 August 2018.

The Offer was conducted to advance the HPA First process, as a fast track to become a globally significant, low cost producer of HPA.

The funds raised will be principally used to:

- Advance pre-feasibility study testwork.
- PFS engineering and reporting.
- Testwork piloting.
- Project and product marketing.
- Working capital and costs of the Offer.

For further information, please contact:

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## Competent Persons Statement (Exploration Results)

The information in this report that relates to Exploration Results is based on information compiled by Rimas Kairaitis, who is a Member of The Australasian Institute of Mining and Metallurgy. Rimas Kairaitis is Managing Director of the Company and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.' Mr Kairaitis consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

## Competent Persons Statement –Homeville Mineral Resource Estimate

The Mineral Resource Estimate for the Homeville deposit has been compiled by Kahan Cervoj B. App. Sci (Geology), MAIG MAusIMM. Mr Cervoj is an employee of Mineral Industry Consultants, Optiro Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Cervoj consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

To the extent that this announcement contains references to prior exploration results and Mineral Resource estimates, which have been cross referenced to previous market announcements made by the Company, unless explicitly stated, no new material information is contained. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

## **Competent Persons Statement (Process Development Testwork)**

Information in this announcement that relates to metallurgical results is based on information compiled by or under the supervision of Dr Stuart Leary, an Independent Consultant trading as Delta Consulting Group. Dr Leary is a Member of The Australasian Institute of Mining and Metallurgy (AusIMM). Dr Leary has sufficient experience to the activity which he is undertaking to qualify as a Competent Persons under the 2012 Edition of the 'Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr Leary consents to the inclusion of the technical data in the form and context in which it appears.

For further information on testwork results and processes see ASX announcements dated 6 September 2018, 31 August 2018, 9 July 2018, 30 April 2018, 26 April 2018, 21 March 2018, 6 March 2018, 21 February 2018, 8 December 2017, 30 November 2017, 29 November 2017, 24 November 2017 and 13 November 2017.

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