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ASX: **A4N**
ASX Announcement
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The Manager Companies
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(4 pages by email)

HPA FIRST PROJECT UPDATE

PRE-PILOT SOLVENT EXTRACTION RUN DELVERS VERY STRONG RESULTS

- **The 1st phase of the Pre-Pilot Solvent Extraction (SX) run on the modified feedstock is complete.**
- **A major process improvement was confirmed with very stable SX conditions with very strong impurity rejection.**
- **Aluminium extraction averaged 93%, peaking at 99%.**
- **Final SX liquor (Advanced Electrolyte) substantially higher purity than any previous SX testwork.**
- **HPA refining expected to deliver further purity improvements.**

HPA MARKETING

- **HPA end-user trip to China completed in March.**
- **Each HPA end-user (battery separator manufacturers) confirmed 4 to 6 times capacity expansion through to 2022.**
- **Technical exchange commenced with HPA samples to end-users to commence in late April.**
- **Follow-on end-user visits continuing in May.**

PROJECT SITE SELECTION AND REAGENT SUPPLY

- **Alpha HPA has progressed the process of project site selection, evaluating potential sites in Newcastle, Gladstone and WA.**
- **An application to purchase has been lodged on a suitable land parcel within the Gladstone State Development Area.**
- **Site selection process being run in parallel with discussions with potential reagent supply and by-product off take counterparties.**

PILOT PLANT AND DFS

- **Pilot Plant assembly is being progressed at Alpha HPA's facility in Brisbane.**
- **A number of key engineering steps completed in DFS.**

Managing Director, Rimas Kairaitis, commented; "*The Company's technical program is progressing rapidly and continues to confirm the robustness of the process and the major technology advantage of the HPA First Project. The strategic interactions, on both the reagent supply and HPA offtake fronts has been very encouraging, with technical dialogue now underway with a number of offtake counterparties.*"

PRE-PILOT SOLVENT EXTRACTION RUN

Background

As a follow-on of the adoption of the modified aluminium feedstock, Alpha HPA Limited ('the Company' or 'Alpha HPA') is completing a 'pre-pilot' solvent extraction (SX) run to set the key process parameters for the pilot plant operation. The SX run is being conducted on a continuous 24 hour basis using the in-house SX mini-rig to simulate the commercial facility.

The pre-pilot SX run is being conducted in 2 x 3 day phases, with results from the first phase now received.

Results

The first phase of the pre-pilot SX run on the modified feedstock confirmed a major advance in physical and chemical process stability, with immediate strong aluminium extraction with minimum operator involvement.

Results confirmed record aluminium extraction (reaching 99%) and the best impurity rejection recorded from any previous testwork.

Key results of the testwork are as follows:

- Aluminium extractions averaged 93%, and peaked at 99% at stable operation
- The purity of the Advanced Electrolyte (AE) averaged 99.98% purity, peaking at 99.99% purity. The AE is the liquor which proceeds to the crystallisation stages, where the product is further purified. This is a very significant improvement on AE purity when compared to previous testwork, and indicative of further improvements in HPA purity from most recent HPA purity results of 99.994%. Of particular note is that the elemental impurities in the AE, are all very low or below detection limits, notably:
    - Na < 1ppm
    - Ga <2.6ppm
    - Mg <3ppm
    - Ca <2ppm

PROJECT SITE SELECTION AND REAGENT SUPPLY

The HPA First PFS (ASX: 20 November 2018 and 7 March 2019) was predicated on a Project site based in Newcastle NSW, due to proximity to skills, logistics and reagent supply. The review of potential Project sites has now expanded to include Gladstone Sate Development Area (SDA) as well as potential sites in WA.

Each of the sites under evaluation have potential access to reagents and an existing market for the fertiliser by-product.

Alpha HPA is in discussions with a number of strategic counterparties with regard to the purchase of land, key process reagents and sale of the dominant fertiliser by-product. The outcome of these discussions will significantly dictate the final Project Site selected.

As part of this process, Alpha HPA has lodged an application to reserve the purchase of a suitable land parcel within the Gladstone SDA.

HPA MARKETING

During March 2019, the Company completed an marketing visit to China meeting three significant battery separator manufacturers (HPA end-users), electronic vehicle (EV) car manufacturers as well as separator coating machinery manufacturers.

The trip has strongly affirmed EV and EV materials (including HPA) demand, with each of the separator manufacturers visited confirming between 4 to 6 times manufacturing capacity expansion through to 2022. In many cases, supply chains, including for HPA, are yet to be filled as capital expenditure across the entire Chinese battery/EV industry is being brought forward to access Chinese Government subsidies.

As a result of the trip, Alpha HPA has commenced a technical exchange with each of the HPA end users, with HPA samples to be provided on completion of the current 'pre-pilot' testwork, followed by larger (2 to 5kg) HPA samples generated during the pilot program.

Follow on end-user visits are planned for May and June, including the European and USA markets.

INTERIM WORKS

A significant round of testwork is now being completed as part of the Interim Works program, required to determine key parameters of the DFS design and costings.

Front end optimisation studies: This work is now complete and informed the PFS costings update released to the ASX on 7 March 2019.

In-house manufacture of low-impurity reagent for the crystallisation stage: During the November 2018 crystallisation and HPA refining testwork, impurities with the final HPA product (99.994% purity) were largely found to have been introduced by minor volume reagents which are used in the process. In response, testwork to manufacture higher-purity versions of these reagents in-house has been completed, with very significant reductions in key impurities. This is expected to translate to further purity in the final HPA. This process mimics the process at commercial scale, and will also be implemented in the upcoming HPA First pilot plant.

Materials of construction testing: This work is designed to test a range of potential materials of construction for structural and chemical integrity when immersed in the likely range of process solutions and temperatures proposed for the commercial HPA First process. Materials under test include a full range of stainless steel and fibre reinforced plastics. The stainless coupons are variously stressed/welded and stamped to simulate construction treatment. This work is now nearing completion and will inform the materials of construction for the final DFS design and provide DFS level support for final plant costings.

HPA Morphology study: As the HPA First process is unique in producing HPA via a wet chemical purification process, the process is able to adjust chemical settings in the process to modify the physical characteristics of the final HPA (being particle size, specific surface area and density). This allows the process to be 'tailored' for any varying specifications required by end-users. The Morphology study is being completed which will allow Alpha HPA to adjust its process accordingly and deliver bespoke HPA specifications as required by end users.

Filtration testing: Testwork on the filter products within the process is now complete. This work will inform process flows and filter sizing in the DFS and the commercial plant.

DFS AND PILOT PLANT

The pilot plant equipment list was finalised in March 2019 and all long lead time equipment orders have been placed, with equipment steadily arriving on site. As announced in the 7 March 2019 ASX release, the key pilot plant SX modules are already on site. Replacement SX vessels, hosing and pumps on the pilot SX rig are all being upgraded ahead of the pilot run. The pilot plant remains on track for commencement in June.

DFS work has commenced where it is not restricted by ongoing test work. Work completed includes:

- Draft Process Flow Diagrams have been generated.
- RFQ's have been prepared for issuedto all suppliers where major equipment specifications are known.

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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 7 March 2019, 4 December 2018, 20 November 2018, 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.

Cautionary Statement

The Pre-Feasibility Study (PFS) referred to in this announcement has been undertaken to assess the technical and financial viability of the HPA First Project. Further evaluation work including a Definitive Feasibility Study (DFS) is required before the Company will be in a position to provide any assurance of an economic development case. The PFS is based on the material assumptions about the availability of funding and the pricing received for HPA. While the Company considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by this PFS will be achieved. To achieve the range of outcomes indicated in the PFS, Pre-Production Capital in the order of A$198 million plus working capital will likely be required. Investors should note that there is no certainty that the Company will be able to raise the amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of the Company's existing shares. It is also possible that the Company could pursue other "value realisation" strategies such as a sale, partial sale or joint venture of the Project. If it does, this could materially reduce the Company's proportionate ownership of the Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the PFS.

Forward Looking Statements

This PFS contains certain forward-looking statements with respect to the financial condition, results of operations, and business of the Company and certain plans and objectives of the management of the Company. These forward-looking statements involve known and unknown risks, uncertainties and other factors which are subject to change without notice, and may involve significant elements of subjective judgement and assumptions as to future events which may or may not occur. Forward-looking statements are provided as a general guide only and there can be no assurance that actual outcomes will not differ materially from these statements. Neither the Company, nor any other person, give any representation, warranty, assurance or guarantee that the occurrence of the events expressed or implied in any forward-looking statement will actually occur. In particular, those forward-looking statements are subject to significant uncertainties and contingencies, many of which are outside the control of the Company. A number of important factors could cause actual results or performance to differ materially from the forward looking statements. Investors should consider the forward looking statements contained in this PFS in light of those disclosures.