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The Manager Companies
ASX Limited
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(11 pages by email)

FAST TRACK PATH TO HPA PRODUCTION

HIGHLIGHTS

- **The Collerina Project PFS testwork process has identified a major opportunity to fast track High Purity Alumina (HPA) production (the 'HPA First' process).**
- **The HPA First process uses the Company's proprietary licenced solvent extraction and refining technology and a feedstock blend of available industrial products rather than an acid leach solution generated from the Collerina Project.**
- **The alternate feedstock delivers an aluminium tenor at multiples higher than achievable with an acid leach solution.**
- **Bench scale solvent extraction test results have confirmed the viability of the HPA First process.**
- **This major advance represents the opportunity to rapidly fast track HPA production, as the dominant revenue material, ahead of any mine development.**
- **This HPA First process is a far simpler process than the original process flow sheet, and does not require the development of a mining operation or associated acid plant, leach vessels, filtration plant, neutralisation circuits or tailings facilities, with the following benefits:**
 - **significant reductions in the process plant equipment and vessel sizing;**
 - **significant CapEx reductions;**
 - **significant OpEx reductions;**
 - **de-risked project implementation with a faster track through DFS, permitting, financing and construction to operational cash flow.**
- **The Pre-Feasibility Study has been formally modified to deliver an initial PFS Report based on the HPA First process and is expected to deliver a dramatically improved business case.**
- **To accommodate the additional engineering and testwork required, the PFS delivery is now expected in October 2018.**
- **The option of the future integration of a nickel-cobalt-scandium process is retained.**

HPA First

The Directors of Collierina Cobalt Limited ('Collierina' or 'the Company') are pleased to announce that a major opportunity has been identified to fast track the production of High Purity Alumina (the 'HPA First' process) at significantly reduced capital and operating expenditures (CapEx and OpEx). The opportunity has been identified as a consequence of HPA testwork underway as part of the Pre-Feasibility Study (PFS) on the Collierina Project, in central NSW.

On 24 November 2017, Collierina confirmed the successful production of 4N (99.99% purity) HPA using the Company's proprietary licenced solvent extraction (SX) and refining technology on a pregnant leach solution (PLS) generated from the counter current atmospheric acid leaching (CCAL) of laterite ore from the Collierina Project. During the expanded testwork program underway for the PFS, the opportunity was identified to apply the same proprietary technology on an alternate feedstock, made up of a blend of available industrial products, rather than a PLS liquor generated from acid leaching of the Collierina Project ore. The alternate feedstock provides aluminium to the SX circuit at multiples higher tenor than achieved using the Collierina Project PLS.

The Company advises that the proprietary licenced SX and refining technology and the alternate feedstock are commercial-in-confidence.

Based on positive solvent extraction results now received, the Company can now report that bench scale testwork has confirmed the HPA First process as being amenable to the production of 4N HPA.

The Board has now formally modified the scope of the PFS to deliver the initial findings based on the HPA First process.

The modified PFS is expected to allow the Company to rapidly fast track the production of HPA, the dominant revenue product, and is expected to confirm a dramatically improved business case by delivering a number of very significant advantages over the previous process path, namely:

- a far simpler process flow sheet than the original process flow sheet which does not require the development of a mining operation or associated acid plant, leach vessels, filtration, neutralisation circuits or tailings facilities;
- a significant reduction in process plant equipment and vessel sizing;
- significant CapEx reductions;
- significant OpEx reductions;
- the simplification of the process flow sheet substantially de-risks the project, providing a fast-track through Definitive Feasibility Study (DFS), permitting, financing, project implementation and operational cash flow; and
- the option is retained to integrate PLS feed from the Collierina Project at a future date, to expand the revenue base into nickel, cobalt and scandium.

Bench Scale Validation Testing

A series of bench scale aluminium solvent extraction tests were undertaken to confirm the viability of the HPA First process. These tests displayed excellent physical and chemical characteristics consistent with previous testing and achieved greater than 95% aluminium extraction while maintaining excellent rejection of impurities sufficient to allow the production of 4N HPA.

Pre-Feasibility Study

With the decision to modify the PFS to deliver study outcomes based on the HPA First process, the Company has engaged PFS Study Managers, Prudentia Process Consulting, to complete the PFS on this basis. The modified study will require additional engineering and 'mini-rig' runs to collect key process information for the PFS. The mini-rig campaign is expected to produce approximately 1kg of 4N HPA for marketing samples by September 2018.

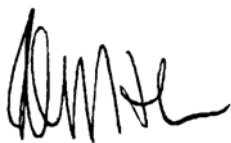
Allowing for the additional engineering and testwork requirement, the modified PFS is now expected to be delivered in October 2018.

Collerina Project Nickel-Cobalt-Scandium

The HPA First process represents a technological advancement to the production of HPA and a modification of the PFS to focus on a fast track through to production of the dominant revenue product (HPA). This technological advancement does not preclude the future integration of the HPA First process with a flowsheet to produce nickel, cobalt and scandium. Accordingly, the still considers that the chemical characteristics of the Collerina Project ore represent a unique opportunity to produce nickel and cobalt under a compelling business case when compared to other nickel-cobalt laterite proponents.

The Company expects to update the market on the nickel-cobalt-scandium process following the completion and delivery of the HPA First PFS.

Yours sincerely



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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 Mr Boyd Willis, an Independent Consultant trading as Boyd Willis Hydromet Consulting. Mr Willis is a Fellow and Chartered Professional of The Australasian Institute of Mining and Metallurgy (AusIMM). Mr Willis 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'. Mr Willis 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 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.

JORC Code, 2012 Edition – Table 1

1. *Section 1 Sampling Techniques and Data*

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> • <i>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</i> • <i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i> • <i>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i> 	<ul style="list-style-type: none"> • RC /air core drill samples were collected from the rig cyclone every 1 metre of drilling. Samples were collected into a plastic bag which was retained on site. Individual samples were not weighed on site. • Material was composited on a 2 metre basis from 1 metre sample bags. Due to the damp nature of the laterite material use of a splitter was not practical. As such composite samples were collected using a standard polystyrene 32oz scoop collecting approximately 1kg per scoop for a total of 5kg collected per each 2m composite sample. Samples were submitted to ALS Minerals in Orange, NSW for sample preparation and forwarded by ALS to Brisbane lab for assay by XRF fusion technique.
Drilling techniques	<ul style="list-style-type: none"> • <i>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</i> 	<ul style="list-style-type: none"> • Drilling was completed using a standard reverse circulation, air core drilling technique. Disaggregated sample material was collected from the rig-attached cyclone into plastics bags every 1 meter of drilling.

<p><i>Drill sample recovery</i></p>	<ul style="list-style-type: none"> • <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i> • <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i> • <i>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i> 	<ul style="list-style-type: none"> • Samples were collected at 1m intervals during drilling and composited on 2 meter basis for assay. In cases where the samples were very wet with poor recovery a best effort sampling using the scoop was conducted to ensure that the composites were representative.
<p><i>Logging</i></p>	<ul style="list-style-type: none"> • <i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i> • <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i> • <i>The total length and percentage of the relevant intersections logged.</i> 	<ul style="list-style-type: none"> • Pertinent details of the lithology drilled and any observations in regards to types and % concentration of individual mineral present were recorded. • Representative sieved rock chip were collected from each sample and collected in standard plastic chip trays for future reference. • Upon hole completion each tray was also photographed.
<p><i>Sub-sampling techniques and sample preparation</i></p>	<ul style="list-style-type: none"> • <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i> • <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i> • <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i> • <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i> • <i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i> • <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i> 	<ul style="list-style-type: none"> • 2 m composite samples were collected for assay using a scoop collecting approximately 2.5kg from each 1 metre sample. • Composite samples were bagged and tagged with unique assay number for analysis. • Due to the damp nature of the sample material no intermediary riffle splitter was used to sub-sample. • Subsequent metallurgical test samples were prepared from pulverized and coarse reject sample material remaining after initial sample preparation and assaying completed by ALS laboratories in Orange, NSW and Brisbane, QLD.

Quality of assay data and laboratory tests

- *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*
 - *For geophysical tools, spectrometers, handheld XRF instruments etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*
 - *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*
- Each 2m composite sample was either delivered by Company representatives to ALS Laboratory in Orange NSW or shipped directly to the lab using a commercial carrier from Dubbo, NSW.
 - Samples were then sub-split into 3kg samples if required and dried and crushed to 70% passing 2mm followed by pulverizing to 85% passing 75 micron (200 mesh)
 - The homogenized and pulverized samples were then sent by ALS to their lab in Brisbane for major oxide and select element analysis according to their published nickel ore package using fused disk XRF (ME-XRF12n) method
 - A certified standard pulp and field duplicate and blank sample were inserted at the rate of 1 each per every 30 samples.
 - ALS also has an in-house QA-QC protocol.

Verification of sampling and assaying

- *The verification of significant intersections by either independent or alternative company personnel.*
 - *The use of twinned holes.*
 - *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*
 - *Discuss any adjustment to assay data.*
- All assay data was delivered in both csv and pdf format from ALS.
 - Data was manually checked, and all QA/QC samples assessed for analytical precision and variance. The data was then entered into excel spreadsheets by Collerina Cobalt geologists, then validated and loaded into an Access database.
 - Electronic sample results were uploaded into a Dropbox project folder that can be accessed by permitted Company personnel.
 - Data is exported from Excel and Access into MapInfo & GeoReka software for map-making and 3D modeling.
 - All electronic data is routinely backed up. No hard copy is retained.

Location of data points

- *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*
 - *Specification of the grid system used.*
 - *Quality and adequacy of topographic control.*
- Individual drill hole collar locations were picked up by handheld Garmin GPSmap 64s, deemed accurate to within 5m.
 - The co-ordinates datum system used was GDA 94 for GIS purposes.
 - Topographic control was from Garmin GPSmap 64s. This is adequate for current requirements.

<p><i>Dataspacing and distribution</i></p>	<ul style="list-style-type: none"> • <i>Data spacing for reporting of Exploration Results.</i> • <i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</i> • <i>Whether sample compositing has been applied.</i> 	<ul style="list-style-type: none"> • Drill holes spacing varied from 50m to 100m spacing. • Sample for assay were obtained from 2 meter composites of individual 1 metre samples
<p><i>Orientation of data in relation to geological structure</i></p>	<ul style="list-style-type: none"> • <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i> • <i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i> 	<ul style="list-style-type: none"> • There was no consideration given to sample collection relative to defined or inferred geological structures such as faults or lithological contacts. Sample collection was determined by vertical drilling of each 1 metre drilled. • Given that the material being sampled was laterite which predominately developed horizontally from the surface downward a vertical drilling orientation was deemed appropriate.
<p><i>Sample security</i></p>	<ul style="list-style-type: none"> • <i>The measures taken to ensure sample security</i> 	<ul style="list-style-type: none"> • Rock chip samples were temporally stored at near site accommodation at then delivered by the company geologists to ALS Minerals Laboratory in Orange.
<p><i>Audits or reviews</i></p>	<ul style="list-style-type: none"> • <i>The results of any audits or reviews of sampling techniques and data.</i> 	<ul style="list-style-type: none"> • No reviews or audits have been conducted to this point.

2. *Section 2 Reporting of Exploration Results*

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and landtenure status</i>	<ul style="list-style-type: none"> <i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i> <i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i> 	<ul style="list-style-type: none"> The Collierina mineral licence (~133 km²) is located approximately 40 kilometres south of Nyngan, NSW. The tenement EL 6336 is held 100% by Collierina Cobalt Limited. There is no known impediment to the company completing planned exploration within the tenement.
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <i>Acknowledgment and appraisal of exploration by other parties.</i> 	<ul style="list-style-type: none"> Collierina Cobalt Limited) completed 2 previous drill programs to test for laterite-hosted Ni mineralisation This work culminated in the completion of a JORC compliant resource estimate in 2014. The current exploration is focusing on the Co mineral potential.
<i>Geology</i>	<ul style="list-style-type: none"> <i>Deposit type, geological setting and style of mineralisation.</i> 	<ul style="list-style-type: none"> Mineralisation targeted is hosted within lateritic serpentinite which to date is confined to linear, structurally-controlled belts characterised by a high-magnetic signature. The Co-Ni mineralisation identified to date is contained within limonite and saprolite facies laterite. Such mineralisation is typical of other laterite deposits within NSW.

<p><i>Drillhole Information</i></p>	<ul style="list-style-type: none"> • A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> • easting and northing of the drill hole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar • dip and azimuth of the hole • down hole length and interception depth • hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the 	<ul style="list-style-type: none"> • Drill collar coordinates for holes mentioned in this release are provided.
<p><i>Data aggregation</i></p>	<ul style="list-style-type: none"> • In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated. 	<ul style="list-style-type: none"> • No cutting of reported Al, Co, Ni assays have been employed at this stage of exploration. • Reporting of significant assay intervals were determined utilising assay cut-offs of $\geq 5\%$ Al, $\geq 0.05\%$ Co and $\geq 0.5\%$ Ni. • The use of these cut-offs is based on requirements for metallurgical testwork
<p><i>Mineralisation widths and intercept lengths</i></p>	<ul style="list-style-type: none"> • These relationships are particularly important in the reporting of Exploration Results. • If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. • If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known'). 	<ul style="list-style-type: none"> • The mineralisation is hosted within laterite facies host rock which is largely horizontal in nature. The Al-Co-Ni mineralisation appears to be confined to the same facies and is essentially stratabound in distribution. • No specific determination of 'true' thickness has been done.
<p><i>Diagrams</i></p>	<ul style="list-style-type: none"> • Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views. 	<ul style="list-style-type: none"> • Plan maps and 3D models showing drill hole locations relative to interpreted geology and geophysics have been prepared. These are deemed sufficient to show areas of interest for exploration planning.

<p><i>Balanced reporting</i></p>	<ul style="list-style-type: none"> • <i>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</i> 	<ul style="list-style-type: none"> • Significant assay intervals using appropriate grade cut-offs have been reported. • Some attention was also given to the amount of internal waste (low-grade material between significant assays) however the nature of mining laterite and the requirement for blending to attain a desired bulk grade for processing makes a definite determination of waste very difficult at this point in the program.
<p><i>Other substantive exploration data</i></p>	<ul style="list-style-type: none"> • <i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i> 	<ul style="list-style-type: none"> • Metallurgical testwork was previously completed on an approximate 45kg sample of laterite. This sample was prepared from crushed and pulverised sample material that remained after initial sample assay preparation. • The metallurgical sample represented a composite of individual samples selected to meet leach test criteria. The chemical composition of the metallurgical sample was considered to be representative of the current JORC compliant resource. • Metallurgical testwork on one composite ore sample from Homeville demonstrated excellent extractions of cobalt (94%), nickel (90%) and aluminium (66%) via CCAL (counter-current atmospheric leaching). • The bench scale metallurgical testwork completed for the HPA First process was undertaken on a sample feedstock made up of a blend of available industrial products.
<p><i>Further work</i></p>	<ul style="list-style-type: none"> • <i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i> • <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i> 	<ul style="list-style-type: none"> • Planned exploration by the Company includes additional exploration and resource delineation drilling. • Additional ground geophysics consisting of ground penetrating radar and EM surveys will be considered to define drill targets.

Section 3 does not apply as resource estimates are not being disclosed at this time.

Section 4 does not apply as reserve estimates are not being disclosed at this time.

Section 5 does not apply as this section relates to the reporting of diamonds and other gemstones.