Athena Resources

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The Company Announcements Office
ASX Limited
4 Floor, 20 Bridge Street
SYDNEY NSW 2000

BYRO IRON ORE PROJECT UPDATE

ENGINEERING STUDY

Bulk Super Purity Magnetite **(SPFe) 72.06%Fe**

and

Bulk High Purity Magnetite **(HPFe) 71.55%Fe**

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PROJECT DEVELOPMENT UPDATE

Following the decline of iron ore prices through 2011 to 2015, and resulting poor economics of supplying a mill feed product, Athena committed to a research and development phase. This led to the identification of a high-grade product acceptable to industrial markets other than mill feed. It was decided to concentrate on the Fe1 deposit (M09/166) and the Mt Narryer deposit (M09/168)

There have been many external contributors to the work completed on the FE1 Project. In summary, a Maiden Inferred JORC resource was calculated by AMC Consultants, Perth, on behalf of Athena and announced on 28 November 2011.

The Changsha Institute of Mining and Metallurgy (CRIMM), in China, conducted the first ore characterization test work in 2010 on the FE1 ore, identifying a high-grade magnetite concentrate with low impurities and favorable ore characteristics. At the same time ore characterization test work was carried out in Australia by ALS Ammtec (ALSA) at their specialist iron ore laboratory.

These two sets of independent results are in agreement and collectively underpinned engineering designs and a Pre-Feasibility Study on the FE1 deposit. The pre-feasibility study was completed by GR Engineering Limited, ('**GR**') in Australia. A further study was carried out in 2018 by Yantai Xinhai Mining Research and Design Co, Ltd. (Xinhai) in China. These designs resulted in two separate outcomes.

GR Engineering Plant Costing Study

In the earliest study, GR evaluated the design and costs associated with the construction and operation of a processing facility proposed for the Byro FE1 Magnetite Project.

The process flow sheet and plant design were simple and resulted from analysis of the mineralogical and metallurgical investigations conducted during Changsha Research Institute of Mining and Metallurgy test work in China and ALSA laboratories in Australia. Substantial capital and operating cost savings were identified and compared to other magnetite projects in Australia that required fine grinding and more complex separation techniques. The coarse grind brings with it a significant cost saving in power required for grinding. The preferred process circuit consists of crushing, grinding, classification, rougher and cleaning wet LIMS, thickening and filtration.

Xinhai Engineering and Costing Study

The Xinhai study, (2018), evaluated design and costs associated with construction and operation of a new mining, crushing and processing facility producing concentrate at the the Byro FE1 Magnetite Project. The study aimed to produce a concentrate with a grade of 68% – 70%Fe, P-80 at 110 µm.

As detailed in the ASX announcements on 16 and 17 April 2018 the primary concentrate sample was then further processed, producing a Super Purity magnetite (SPFe) of >72%Fe and a high Purity magnetite (HPFe) of >71.3%Fe. (100% purity magnetite (Fe_3O_4) is approximately 72.35%Fe) The work used bulk sample retrieved from drilling reported to the ASX on 6 November 2017.

As the mineral resource at Fe1 is in the inferred category Athena is not able under the ASX Listing Rules to publish the results of Xinhai Study production targets or economic results. The results of the study were however positive and justify Athena to commit to bringing the inferred resource to an indicated and measured resource and completion of a feasibility study.

Processing options to achieve the high and super purity grades include separation techniques that exclude the use of reverse flotation circuits and the related use of environmentally harmful reagents. This was possible because of the physical characteristics of magnetite ore with very few impurities and the development of simple but innovative processing techniques.

The metallurgical samples produced: SPFe with a grade of 72.00%Fe yielding 38% of the sample tested, and HPFe with a grade of 71.30%Fe yielding 52%. The remaining Iron concentrate with a grade of 65.00%Fe and a yield of 3% is considered a byproduct but still of premium grade quality. The waste material of 7% consists mostly of silica and will be used in the cement industry.

The preferred processing circuits consist of crushing, grinding, classification, rougher and cleaning with concentrate conditioning in conjunction with multiple stages of wet LIMS, followed by thickening and filtration.

The output products from mining and the primary processing in Australia are targeted to be at a grade of >68%Fe with P80 110 µm. It is important to note that the 45µm size component for this product is directly suitable for the coal wash market once screened. The secondary processing plant for SPFe and HPFe products under the Xinhai study was based on production in China.

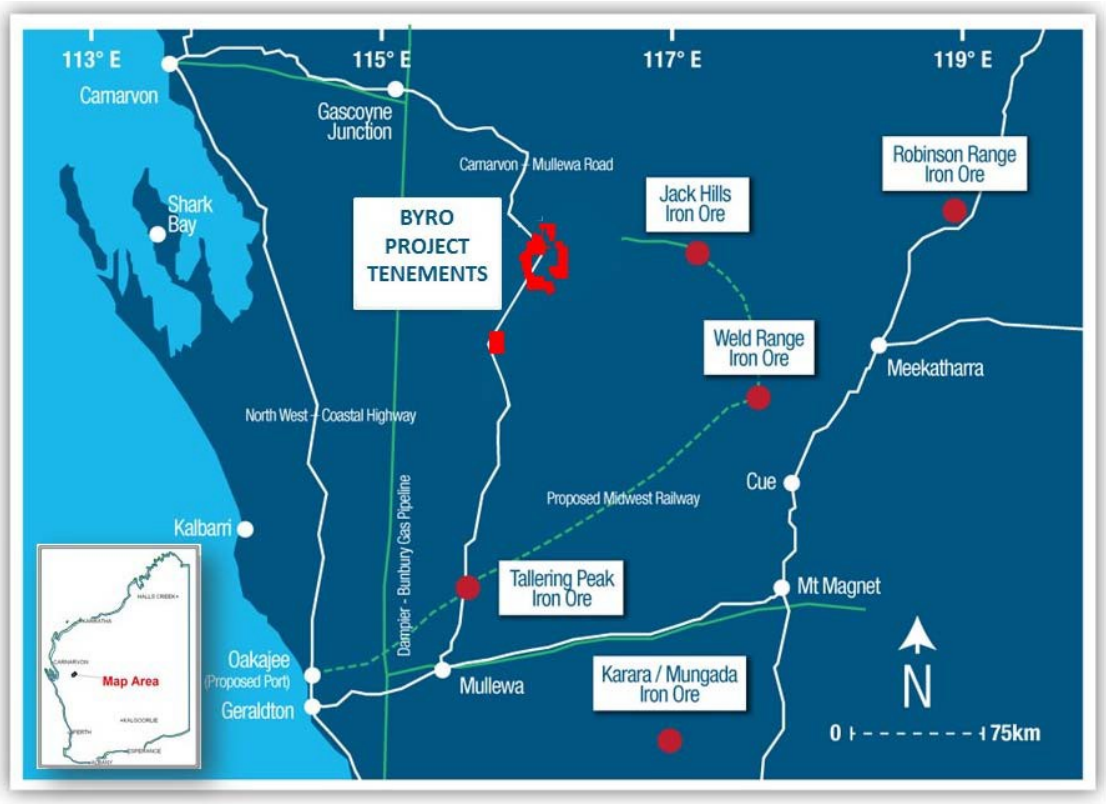
About Yantai Xinhai Mining Technology and Equipment

Shandong Xinhai Mining Technology and Equipment Inc. (stock code 836079) is a stockholding high and new technology enterprise to provide "Turnkey Solution Plant" including design and research, machine manufacturing, equipment procurement, management service, mine operation, mine materials procurement and management as well as industry resources integration. Up to now, with 500 mine EPC projects, mining technologies and experience of 70 kinds of ores and 88 patents, Xinhai has established overseas offices in Sudan, Zimbabwe, Tanzania, Iran, Peru and Indonesia with products exported to more than 20 countries.

About Athena Resources Limited.

Athena Resources Limited (ASX:AHN), which is based in Perth was listed on the ASX in 2006 and currently has 217 million shares on issue. Athena owns a 100% interest in the Byro Project through its subsidiaries Complex Exploration and Byro Exploration where it is exploring for copper, nickel, PGE's and iron ore. Figure 1 below, shows the current tenement holdings.

Figure 1 Regional Project Location



Yours Faithfully

Ed Edwards
Executive Director
ATHENA RESOURCES LIMITED

INTEREST IN MINING TENEMENTS
Athena Resources Limited 100%

Byro	
E09/1507	E – Exploration License
E09/1552	ML - Mining Lease
E09/1637	
E09/1781	
E09/1938	
M09/166	
M09/168	

Cautionary Notes

Forward Looking Statements

This announcement contains certain statements that may constitute "forward looking statements". Such statements are only predictions and are subject to inherent risks and uncertainties, which could cause actual values, results, performance achievements to differ materially from those expressed, implied or projected in any forward-looking statements.

Drilling to date supports aspects of the estimates in this report which were published earlier this year. The quantity and grade reported is conceptual in nature. There has been sufficient exploration to define a mineral resource and further exploration is warranted to improve understanding and reduce uncertainty about this body.

JORC Code Compliance Statement

Some of the information contained in this announcement is historic data that have not been updated to comply with the 2012 JORC Code. The information referred to in the announcement was prepared and first disclosed under the JORC Code 2004 edition. It has not been updated since to comply with the JORC Code 2012 edition on the basis that the information has not materially changed since it was last reported.

Competent Persons Statement

The results of the metallurgical investigation included in the announcement were compiled by Mr Yunlong Zhang. Mr Zhang is the Chairman of the Yantai Xinhai Group of which the Yantai Xinhai Mining Research and Design Co. Ltd., is a fully owned subsidiary. *Mr Zhang is a Fellow of the Australasian Institute of Mining and Metallurgy and has sufficient relevant experience in the styles of mineralisation and deposit styles under consideration to qualify as a Competent Person as defined in "The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition)". Mr Zhang consents to the inclusion of the information in the announcement in the context and format in which it appears, and new information announced in this report is compliant with the JORC Code 2012 Edition.*

The information included in the announcement was compiled by Mr Liam Kelly, an employee of Athena Resources Limited. Mr Kelly is a Member of the Australasian Institute of Mining and Metallurgy and has sufficient relevant experience in the styles of mineralisation and deposit styles under consideration to qualify as a Competent Person as defined in "The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition)". Mr Kelly consents to the inclusion of the information in the announcement in the context and format in which it appears, and that the historical information was compliant with the relevant JORC Code, 2004 Edition, and new information announced in this report is compliant with the JORC Code 2012 Edition.

Competent Persons Disclosure

Mr Zhang is the Chairman of the Yantai Xinhai Group and currently holds securities in the Yantai Xinhai Group as well as securities in the investment company Brilliant Glory Industrial Corporation Limited which has a 19.9% holding in Athena Resources Ltd.

Mr Kelly is an employee of Athena Resources Ltd and currently holds securities in the company.

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *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.*	• The measurement tool used for Magnetic susceptibility was a hand held KT-10 with serial number # 8791
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• Magnetic susceptibility readings were taken at intervals with the average reading noted from scanning mode
	• *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.*	•
Drilling techniques	• *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).*	• Reverse Circulation (RC)
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade*	• Sample was delivered directly into Bulk bags.

Criteria	JORC Code explanation	Commentary
	and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	
Logging	• *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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Drill chips have been geologically logged as well as recording major geotechnical features observable in chip over the full depth of the holes.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.*	• RC Drilling
	• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	• Samples were retrieved in dry rotary cyclone
	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• Industry standard sampling preparation procedures were used
	• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	• Industry standard sampling preparation procedures were used
	• *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.*	• Industry standard sampling procedures were used • No field duplicate/second-half sampling
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Bulk Sample
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.*	• The measurement tool used for mag sus was a hand held KT-10 with serial number # 8791 using units of 10*-3 Standard SI units • Industry standard procedures were used in obtaining the magsus readings. • Standard compliant lab procedures were used to determine assay results from metallurgical products using XRF analysis including the use of standards and blanks.

Criteria	JORC Code explanation	Commentary
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.*	• No adjustments have been made to readings • No Assays reported at intervals The sample was homogenized in composites in the lab for a bulk sample average in preparation for a pilot test processing circuit.
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.*	• Hand held GPS • GDA94 zone 50
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *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.* • *Whether sample compositing has been applied.*	• Collar and end of hole surveys were taken and combined with collar location at surface
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	• This report does not include results that are not affected by orientation.
	• *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.*	• No sampling bias was introduced by drilling orientation
Sample security	• *The measures taken to ensure sample security.*	• Sample security was maintained during all stages of preparation
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Sample security was maintained during all stages of preparation

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *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.*	• Tenements referred to In this report E09/1938 and E09/1507 are 100% Athena owned and operated within native title claim WAD 6033/98, made on behalf of the Wajarri Yamatji People.
	• *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.*	• The tenements are in good standing and no known impediments exist. • See tenement listing attached.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Historic exploration within the project area largely confined to south of a line extending from Imagi Well to the Byro East intrusion (Melun Bore). The earliest work with any bearing on Athena's activities is that of Electrolic Zinc Co (1969) exploring for chromatite at Imagi Well, followed closely by Jododex Australia (1970-1974) at Byro East. Much of the exploration of a more regional nature is of limited use either because of the vagaries of the accuracy of positional information and the limited range of elements analysed. More recent surveys pertinent to Athena's current investigations include that of Redback Mining (1996-2002), Yilgarn Mining Limited (2003-2008) and Mithril (2007, JV with Yilgarn) at Byro East, and Western Mining Corporation (1976-1979) and Precious Metals Australia at Imagi Well. Newcrest Mining carried out a limited reconnaissance RAB drilling programme for platinum just to the east of Byro homestead (1998-1990).
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Upper amphibolite to granulite metamorphic facies with mafic to ultramafic intrusive. Granite and migmatite are common

Criteria	JORC Code explanation	Commentary
Drill hole Information	• *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:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.*	• AHRC0090 and AHRC0091 and AHRC0092 see main body of announcement
	• *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 report, the Competent Person should clearly explain why this is the case.*	• No information has been excluded
Data aggregation methods	• *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.*	• No min max, ave, techniques were used in this report and all workings are shown within this report. References are used where information has been previously announced
	• *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.*	• No aggregation has been used. The samples are a single composite through the entire orebody
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No metal equivalent are referred to in this report
Relationship between mineralisation widths and	*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*	• See main body of report

Criteria	JORC Code explanation	Commentary
intercept lengths	• . • *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').*	• All reference to widths are down hole length, true width is not calculated
Diagrams	• *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.*	• Refer to Figures 1, 2, in the body of the report
Balanced reporting	• *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.*	• This report contains all meaningful drilling results for this campaign
Other substantive exploration data	• *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.*	• This report contains all meaningful drilling results for this campaign
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Drilling programs have been planned and approvals have been granted. The registration ID of the granted PoW's is E09/1938 **ID 45272** E09/1507 **ID 58959**
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The planned drilling information is commercially sensitive and is not included in this report.