SEPTEMBER 2019 – QUARTERLY REPORT

ATHENA RESOURCES LIMITED

ASX Symbol:	AHN
ACN:	113 758 900
Address:	24 Colin Street West Perth WA 6005
Telephone:	(08) 9222 5888
Email:	ahn@athenaresources.com.au
Website:	www.athenaresources.com.au

CONTACTS

Mr Ed Edwards
Executive Director

PROJECTS

Byro Project (Athena 100%):

Industrial Minerals, Iron Ore, Nickel-Copper-PGE's

SECURITIES

292 million Ordinary Shares

SHAREHOLDERS

Brilliant Glory	14.70%
Mr E Edwards	13.03%
Goldway Mega	7.40%
Mr P Newcomb	6.28%
Mr D Webster	4.23%

CORPORATE

- **Placement to Raise $391,000**
- **Placement to convert $366,900 debt to equity.**

BYRO INDUSTRIAL MINERALS MAGNETITE PROJECT

- **International Coal Preparation Congress**
- **Market studies continue for the following uses of Byro Industrial Minerals Magnetite**
  - Dense Media Separation for Coal Washing
  - Ammonia and Gas to Liquid Fuel synthesis
  - Iron Powder Markets
  - Heavy Concrete
- **Fe1 Deposit – Mining Plan Approval work ongoing**
  - Drilling
  - Transport Corridor
  - Water Supply

This PDF is bookmarked for ease of navigation

CORPORATE

PLACEMENTS

On 27 September 2019 Athena Resources Limited announce that it had completed a placement of 11,171,429 fully paid ordinary Athena shares at an issue price of $0.035 each to raise $391,000 (**Placement**).

The shares under the Placement (**Placement Shares**) were issued to Goldway Mega Trade Limited (**Goldway**), a Hong Kong registered company. Goldway is not a related party of Athena.

In addition to the Placement, Athena converted an existing loan of $366,900 via the issue of 10,482,857 fully paid ordinary shares in Athena at a conversion price of $0.035 (**Conversion Shares**). The Conversion Shares are in satisfaction of an existing unsecured, non-interest bearing working capital loan previously advanced in instalments by Goldway.

MARKETING

The coarse grained high grade Byro magnetite primary concentrate can be used for dense medium separation in coal washing mineral preparation.

INTERNATIONAL COAL PREPARATION CONGRESS (ICPC)

The **International Coal Preparation Congress** will be held in New Delhi, India in November 2019. Mr E Edwards, Mr H Wai and Mr Kelly from Athena will be attending. The organisers are expecting 700 delegates and 100 speakers from over 22 countries to attend.

The ICPC was an offshoot of the Allied Coal Commission which was constituted as part of the Marshall Plan post World War II to initiate the process of reconstruction of Europe. The first ICPC was held in 1950 in France and subsequent Congresses were held in Germany, Belgium, UK, USA, Poland, Australia, Ukraine, Russia, India, Canada, Japan, South Africa, Turkey and China. ICPC is now held every three years in a country selected by the IOC through ballot.

The International Organizing Committee (IOC) of the ICPC is a body which has representatives from 15 countries. Representation on IOC is by a non-government organization which deals in their respective country with the issues relating to coal preparation.

The goals of the ICPC inter alia, are:

• to ensure the growth and development of the coal preparation industry, support and promotion of scientific and technical cooperation among all countries;

• to facilitate the exchange of information about the state-of-art technologies in the field of coal mining, preparation and transportation of coal. Also promote new and emerging technologies in the area of environment friendly and low emission coal utilisation.

• to bring together experts from different countries in order to form professional contacts, exchange experimental results, and promote international cooperation.

Indian coal deposits are of 'Drift Origin'. Due to their very generic nature, the ash content is high varying between 22% and 45%, and may go up to even 50 percent. Predominance of coal production from open cast mining leads to further deterioration of the quality of run of mine coal due to 'out of seam' dilution. Coal production in FY 18 was about 690 million tonnes (mt) and demand was about 870 mt. Domestic coal production is set to grow to over 1,000 mt in next couple of years. Presently, the installed coal washing capacity in the country is about 145 mt per annum and it is projected to increase to over 350mt by 2022. In view of the stringent emission norms having been imposed on the coal based power plants; time is not far when washing of all coals could be mandated by the Indian government.

India produces domestically (2018) 690 million tonnes of coal of which 50% is prepared coal and 80% of the prepared coal uses a magnetite dense medium separation system, this is a total of 276 million tonnes of prepared coal.

Magnetite consumption (loss) is influenced by many factors including the coal type and recovery methods. The magnetite losses commonly encountered in modern plants will normally range from 0.5 to 3.0 kg/t, quoted in tonnes of feed to the dense medium section of the plant (Osborne.1988, Mikhail and Osborne, 1990).

This would require approximately 1 million tonnes (projected to increase to approximately 3 million tonnes by 2022) of high quality coarse grained magnetite. The Byro magnetite is ideally suited to this use.

Athena’s goals in attending are

1. Meet with the major coal washeries.
2. Gain further insight into magnetite Dense Media Separation (DMS) for coal washeries on a global scale.
3. Identify magnetite consumers.
4. Showcase the Byro magnetite DMS product specifically produced by Athena to meet the requirements of Indian coal washeries.
5. Meet with steel producers including sponge iron and DRI.
6. Showcase the high purity HPFe, (71.5%) Fe and SPFe, (72%Fe) Products

RESOURCE DEVELOPMENT AND MINING PLAN APPROVAL WORK

Drilling

Planning has been completed for a proposed drilling program. Athena Resources gained approval for an infill drilling program at FE1 for the use of ground disturbing equipment on M09/166-I.Registration ID: 77001. The program design has resulted following discussions with external resource consultants. The planned infill program includes 11 RC with Diamond tail drill holes and is designed to lift the FE1 magnetite resource from a JORC Inferred to JORC Indicated for inclusion in the Byro Project Feasibility Study.

Transport Corridor

The transport corridor for the Byro project includes several options through the development of the project contingent on output tonnage. The primary option within this study is based on an output tonnage of 1.2mtpa delivered to port, by road direct from the mine site to the Port of Geraldton.

Water Supply Desk Top Study

The Yarra Yarra Paleo Channel Bore Field:

Two holes using reverse circulation drilling within the Yarra Yarra Paleo Channel confirms a significant quantity of water. Hole AHRC0019 has been identified as the most proximal to the Yarra Yarra paleo channel and indicates a base of channel at depth of 157m. The Desk Top Study has been expanded on the potential of the channel to supply water for the project using reviewed drilling, airborne TDEM data, 100yr rainfall data sets and pastoral water bore data. The outcome of the study was sufficiently positive to proceed to planning water mass balance investigations and the planning and design of a 2 bore, bore field. This work is ongoing and is a requirement for completion of a feasibility study, mining proposal and prior to the preparation and submission of a H3 Hydrogeological Report with 5C license application.

Two water holes will be drilled and cased to draw response tests once targets have been defined. Drilling will be included in the infill program at FE1.

MARKETS AND PRODUCT REQUIREMENT

Bulk Coal Wash Market

The much sought after coarse grained high grade magnetite concentrate is primarily used for dense medium separation in coal washing mineral preparation.

Magnetite is suited to coal washing due to its:

- High density; and
- Ability to be recovered via magnetic separation for recycling and reuse.

The dense medium separation process used in most coal washing and magnetic separation plants requires a suspension of magnetite in water. Magnetite for coal washing must be of overall high purity and be devoid of contaminants, such as hematite, sulphides or other minerals.

Magnetite is reasonably durable (and therefore does not readily break down), and is chemically stable during coal washing and magnetic separation. It is also non-fouling, which means that even if small amounts become incorporated with washed products, subsequent treatment stages will not be adversely affected.

Magnetite in Dense Media Separation

Heavy media gravity separation means separating products with different densities. Magnetite is used to produce dense medium slurry for coal washing (as above), mineral processing and recycling of metals and plastics.

Magnetite in Ammonia and Gas to Liquid Fuel Synthesis Markets

The catalyst market carries one of the highest demands on purity and as such pays high premiums to acknowledge the cost of maintaining a high standard. The Byro FE1 magnetite product meets all requirements for raw material intake for production of iron catalysts for the synthesis of ammonia and Gas to Liquid fuels.

Iron Powder Markets

The Byro Fe1 SPFe and HPFe magnetite products meet all requirements for a raw material additive for powder metal alloy production. The magnetite products are required to be further processed for final consumption as a powder metal by reduction to produce Fe. The two major uses of iron powder are:

3D Printing (Additive manufacturing)

3D Printing or Additive manufacturing is a process of creating a three-dimensional object from a digital file. It is called additive because it generally involves building up thin layers of material, one by one. The technology can produce complex shapes that are not possible with traditional casting and machining methods, or subtractive techniques.

Iron Powder Press-and-Sinter and Metal Injection Moulding

The predominant market for Press/Sinter structural Powder Metallurgy parts is the automotive sector. On average across all geographical regions, around 80% of all Powder Metallurgy structural components are for automotive applications.

Supply of raw magnetite for powder metal alloys and components market is estimated to be worth more than Au$6 billion by 2020.

Water Filtration

Sand and gravel bed filters used by many municipal water treatment plants can realize benefits by using heavier aggregates in the sand bed.

The heavier specific gravity of magnetite aggregates allow a more aggressive backwash in the cleaning phase without loss of product, and because magnetite is magnetic it can be easily scavenged back from waste water streams for reuse.

Heavy Concrete

When used as the aggregate portion of a concrete mix, magnetite increases the density of the concrete to twice that of standard concrete. This so called "heavy concrete" has become a common building material in nuclear plants as well as (in brick form) for the mitigation of radiation in x-ray facilities. Beyond that, however, heavy concrete is used to make counter weights and as thermal mass in heat storage situations. The most common and growing use is in the design and building of passive solar collection in domestic housing. Still in its infancy, this application has grown out of the search for more efficient heat retention beyond that offered by standard concrete.

The denser the material, the greater its thermal retention properties, and heavy concrete offers twice the mass in the same volume as standard concrete. Being just as strong and flexible as standard concrete, it can be used in the very same applications and offer substantially improved thermal characteristics.

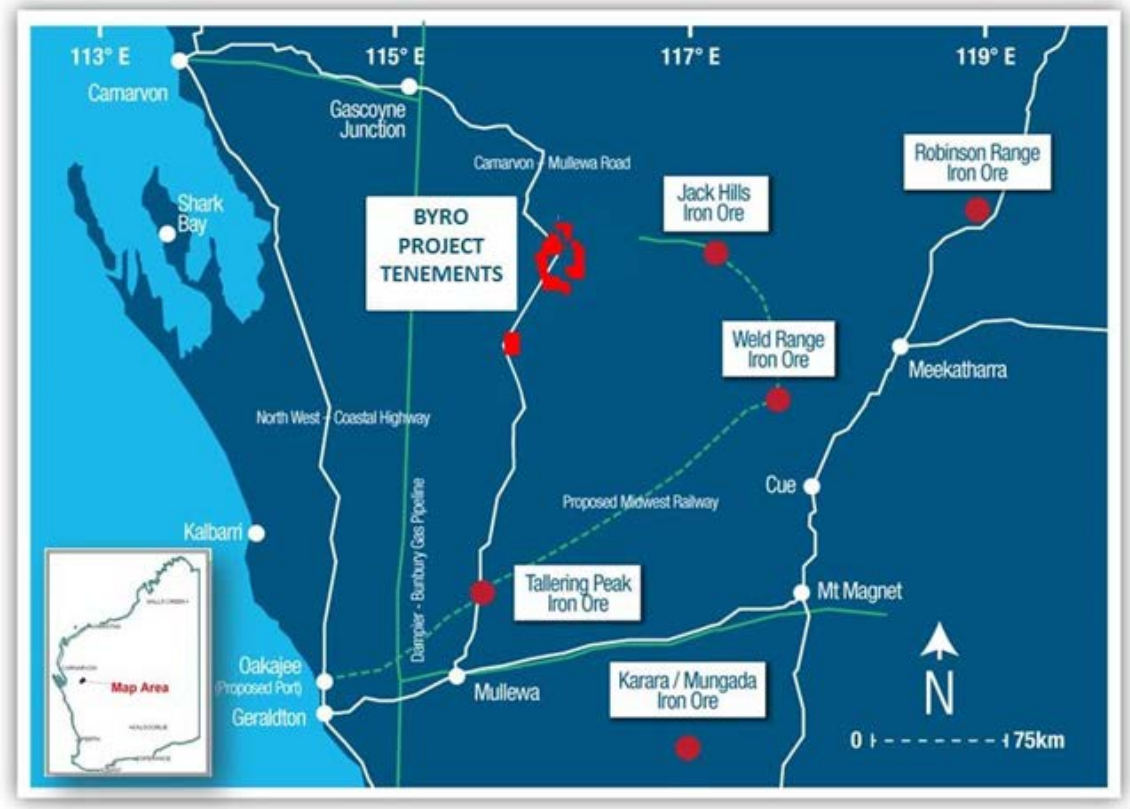
The use of heavy concrete in nuclear power plants is dependent on new plant contracts and old plant repairs. It does not represent a stable consumption but can be an important add-in market in the short term.

The most stable use currently is in the production of counter weights for everything from washing machines to pipeline anchors to crane counterweights.

ABOUT ATHENA RESOURCES LIMITED

Athena Resources Limited (ASX:AHN), which is based in Perth was listed on the ASX in 2006 and currently has 292 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. The Figure below, shows the current tenement holdings.

Regional Project Location



Yours faithfully

Ed Edwards
Executive Director
ATHENA RESOURCES LIMITED
31 October 2019

INTERESTS IN MINING TENEMENTS

Athena Resources Limited 100%	Tenement Type
Byro Exploration	E – Exploration License
E09/1507	
E09/1552	
E09/1637	
E09/1781	
E09/1938	
Byro Project Mining	M - Mining Lease
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 and Disclosure

The information included in the quarterly report 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.

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