Athena Resources

ACN 113 758 900

28 April 2020

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

BYRO INDUSTRIAL MAGNETITE PROJECT

PRODUCT DEVELOPMENT

Athena Resources Limited is pleased to announce the Company has completed test work in cooperation with ALS Laboratories to manufacture a dense aggregate composite for use in heavy machinery counterweights and special purpose heavy construction concrete.

Key Aggregate Characteristics

1. High Degree of Particle Size Control and Distribution, (PSD).
2. Compaction Ratio Suitable for Addition of Cements
3. Low Water Requirement to Achieve High Strength Concrete.
4. Relative Density of 4.05t/m^3
5. Low Impurities

Athena Resources Limited
24 Colin Street | West Perth | Western Australia | 6005
PO Box 1970 | West Perth | Western Australia | 6872
Ph 08 9222 5888 Fx 08 9222 5810 E athena@athenaresources.com.au W athenaresources.com.au

Sample Preparation

Sample was prepared from reverse circulation (RC) drilling completed in September 2017 from the Mt Narryer Mining Lease. The drill holes (AHRC0091 and AHRC0092), targeted the natural iron ore oxide, magnetite.

AHRC0091: Collar, 396017mE, 7062836mN. End of hole 90m, RL 310m, Ore Zone 40m, in fresh rock at depth of 44m.

AHRC0092: Collar 396017mE, 7062859mN. End of hole 66m, RL 310m
Ore Zone 24m in fresh rock at depth of 42m.
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Applied Technology

1: Particle Size Distribution

RC chips retrieved from drill return were washed and screened to 13 size fractions from 20mm to <0.075mm, shaken through a nest of sieves from largest down to smallest. Each fraction was then subject to a single pass of low intensity magnetic separation (900 Gauss), discarding the nonmagnetic aggregates.

Products of the various size fractions were then aggregated according to percent by weight to achieve an aggregate requirement meeting the concrete additive standard of AS2758.1.

The aggregated target composite was then tested by ALS laboratories sieving the combined sample in accordance with the requirements of AS 1141.11.1. The sample of aggregate was shaken through a nest of sieves from largest down to smallest. The product was reported as the percentage passing each individual sieve size. The test was performed in a dry state ('dry grading').

Table 1: Sample Composite Target

Byro Industrial Heavy Aggregate Composite (8mm)			
Product Composition			
AHN Constituents	AHN Sieve mm	component 2Kg % Split grams	2Kg Amount in grams
11% of Product	12.5>8 8.0>5.0	20.0 200.0	220
53% of Product	5.0>4.0 4.0>3.0 3.0>1.0	180.0 480.0 400.0	1060
12% of Product	1>0.850 0.85>0.300	138.0 102.0	240
24% of Product	0.300>0.25 0.250>0.15 0.150>0.075	66.7 33.3 100.0	480
	0.075	280.0	

Table 2: Product Particle Size Distribution Result

A20448				
ATHENA RESOURCES (DRY SIZING ON COMP#1)				
Operation	**Size (mm)**	**Weight (g)**	**Weight (%)**	**Weight % <**
Screening	12.500	0.0	0.0	100.0
	8.000	10.9	0.7	99.3
	5.000	141.3	9.6	89.7
	4.000	192.8	13.1	76.6
	3.150	242.6	16.5	60.1
	1.000	418.1	28.4	31.8
	0.850	22.3	1.5	30.2
	0.300	80.1	5.4	24.8
	0.250	25.2	1.7	23.1
	0.150	39.6	2.7	20.4
	0.075	112.7	7.6	12.8
	-0.075	188.0	12.8	
Initial		1473.6	100.0	

The results of the particle size distribution (Table 2), are shown in a PSD curve, Figure 1 below, and can be compared to the typical concrete grading curve in Figure 2.

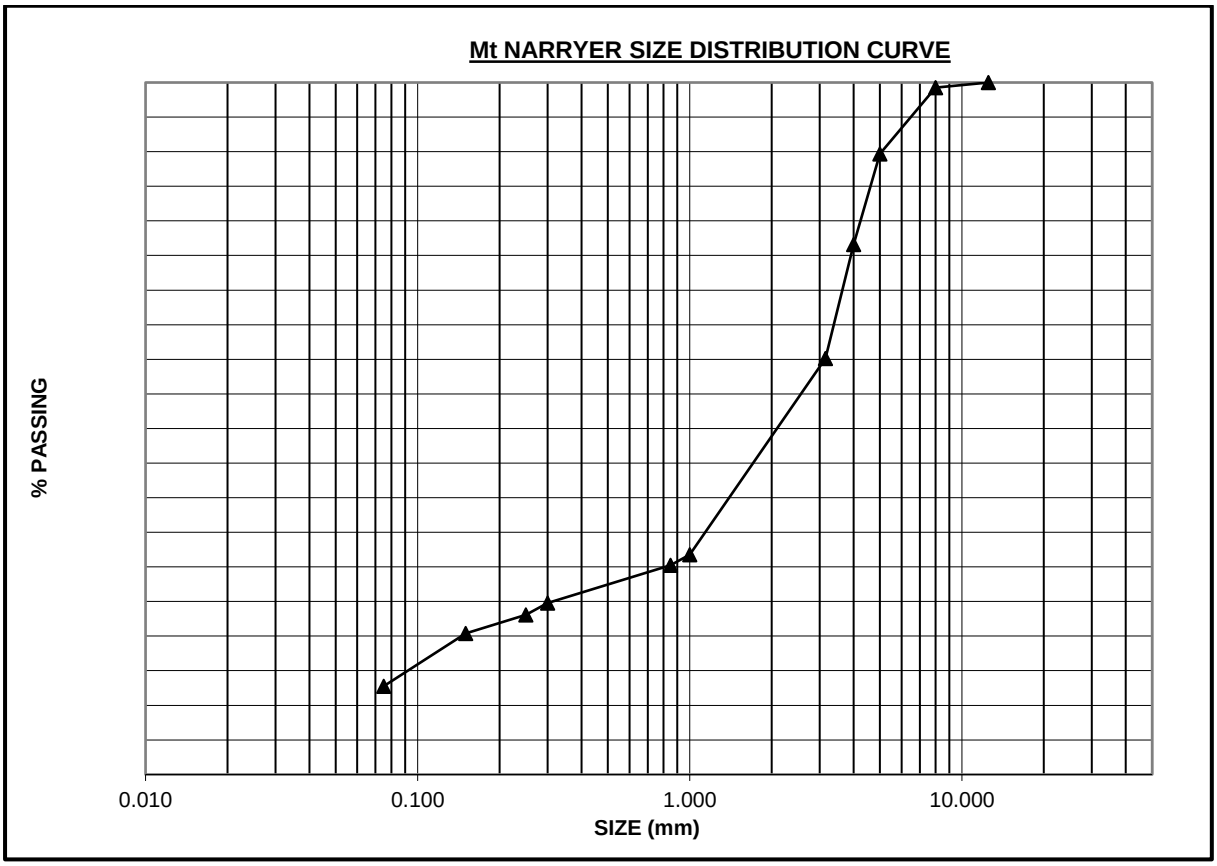


Figure 1: Mt Narryer size distribution curve

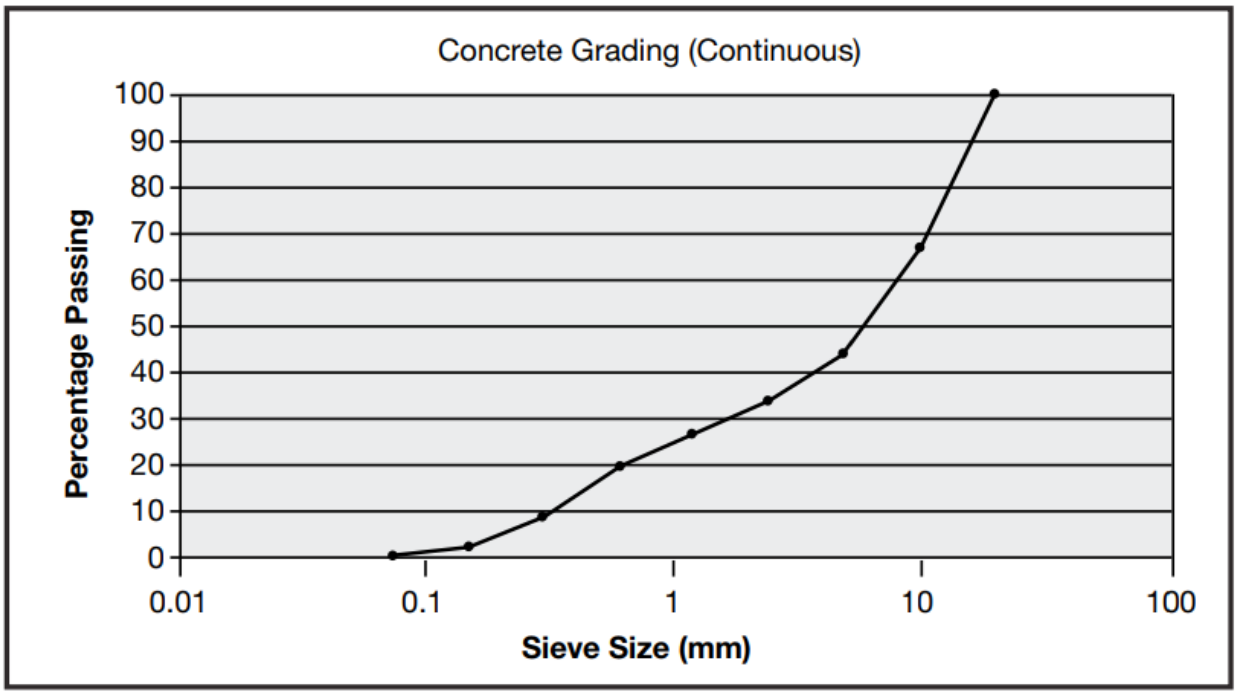


Figure 2: Typical concrete grading curve.

The Mt Narryer heavy aggregate product PSD conforms within grading deviation specifications in accordance with industry standard AS 2758.1. The aggregate PSD can also be custom manufactured to meet the requirement of special industry needs.

2. Compaction Ratio

The Mt Narryer heavy aggregate product was subject to compaction tests identifying "Uncompacted Bulk Density", (Table 3), and "Compacted Bulk Density", (Table 4).

Table 3. Uncompacted Bulk Density.

Uncompacted Bulk Density - Head	
Sample ID	**Bulk Density (kg/L)**
Comp#1	2.26

Table 4. Compacted Bulk Density

Compacted Bulk Density - Head	
Sample ID	**Bulk Density (kg/L)**
Comp#1	2.63

The result demonstrates pore space capacity for the aggregate to cater for cement binders. Importantly the result shows a low compaction ratio. Excess pore space requires excess cement binder and water.

3. Water Requirement.

Low uncompacted pore space demonstrates the Mt Narryer dense aggregate product has appropriate grading. Well graded aggregates have a lower water requirement, (Figure 3), a key factor in concrete strength. A lower water cement ratio produces higher strength concrete. The low compaction ratio of the Mt Narryer dense aggregate is suitable to be used in high strength concrete greater than 55 -100Mpa.

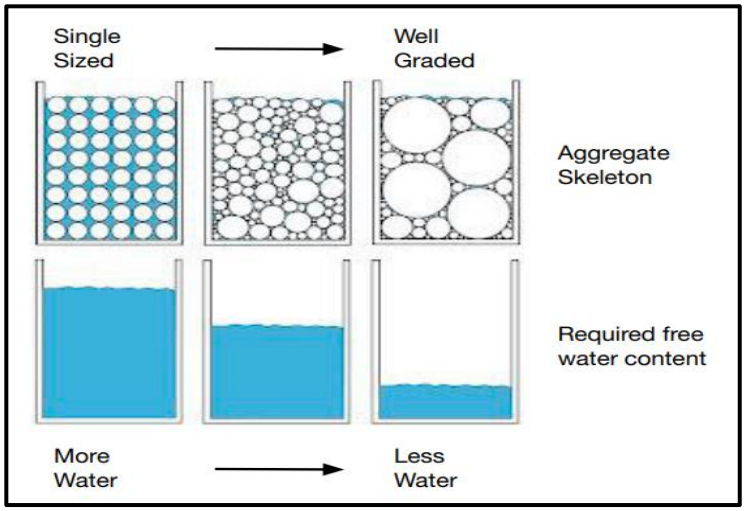


Figure 3. Low Water Requirement to Achieve High Strength Concrete. (AS2758.1.)

4: Relative Density

Results from a specific gravity test to determine the density of the Mt Narryer aggregate product was greater than 4 tonnes per cubic meter. The product, when used in heavy concrete will allow savings in concrete volume and excavation costs for construction as well as effective counterweight properties.

Table 5. A20448 - SG Results

SG - Head	
Sample ID	**SG**
Comp#1	4.05

The very high density of the Mt Narryer aggregate producing a heavy concrete in excess of 4 tonnes per cubic meter has a collective quality with a high strength concrete. High strength concrete has a cement:aggregate ratio of 1:5. (Cement having a specific gravity of 3.15t/m^3).

5. Low Impurities

The product chemical analysis was completed by ALS Laboratories using industry standard XRF assay techniques. The largest stable components from chemical analysis, (78%), was made up of mostly natural magnetite iron oxide and lesser silicate. Very low levels of impurities were recorded.

Table 6. Assay of the Mt Narryer Heavy Aggregate Product and Impurities

A20448 - Athena Resources - Head Assay (Comp#1)						
Al2O3 (%)	Cl (%)	CaO (%)	K2O (%)	Na2O (%)	P (%)	S (%)
0.50	0.005	1.23	0.017	0.038	0.049	0.043

Elements such as sulphur, phosphorous, chloride and sodium reduce the durability of concrete and shorten the structural lifespan. Assays showing these elements are shown in Table 6 above.

The product development and test work described in this announcement demonstrate the Byro Industrial Magnetite Project can produce a heavy aggregate product suitable for heavy machinery counterweights and special purpose heavy construction concrete. Inherent advantages of the natural magnetite from the Byro Industrial Magnetite Project lends itself to many advantages, both economic and environmental, over standard concrete aggregates.

Advantages

- Increased weight for a given volume
- Reduced heat of hydration
- High submerged/saturated density
- High radiation shielding characteristics
- Space saving
- Noise and vibration dampening
- Thermal energy storage

Although the test work was focused on heavy machinery counterweights and special purpose heavy construction concrete, there are a broad array of other applications for high density concrete aggregates.

Applications

- Loose ballast:
- Offshore ballasting of rigs and caissons
- Scour protection for underwater structures of pipelines
- Ground stabilization - to reduce piling
- Heavy concrete:
- Under water concrete (tunnels, pipeline mattresses)
- Counterweights (bridges, locks, sluices, elevators, excavators)
- Coastal protection (breakwaters, precast antifer cubes)
- Pipe coating (negative buoyancy coatings)
- Radiation shielding (medical & nuclear)

Athena Resources is continuing to develop the Byro Industrial Magnetite Project. The company holds a high priority on product and market development alongside encryption of the resource towards mining approvals. The heavy aggregate for concrete is included in the growing number of industrial magnetite products being developed by Athena from the Byro Industrial Magnetite Project.

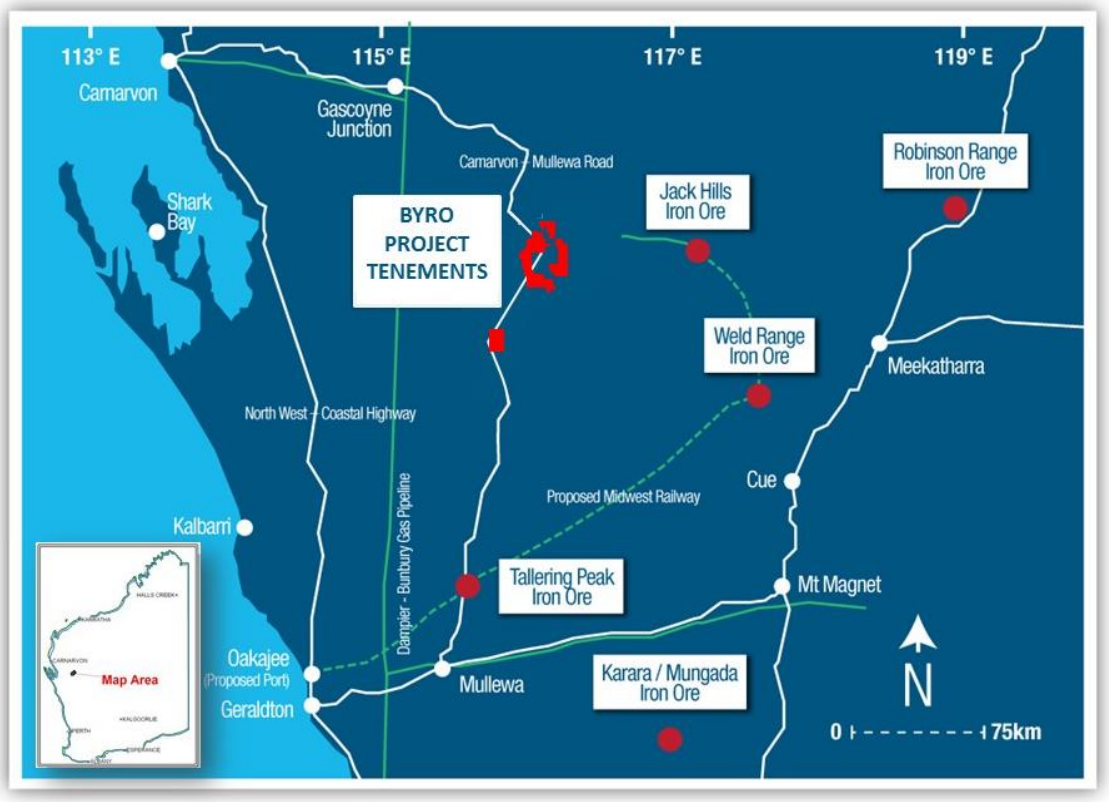
Ongoing Product Development Includes

- Byro Industrial Magnetite for DRI Feed for powder metals and alloys.
- Byro Industrial Magnetite Catalyst Grade for ammonia and fuel synthesis.
- Byro Industrial Magnetite DMS for coal washeries.
- Byro Industrial Magnetite 3D Printing specification.
- Byro Industrial Magnetite for Black Pigment.
- Byro Industrial Magnetite for Water Filtration.

About Athena Resources Limited.

Athena Resources Limited (ASX:AHN), which is based in Perth was listed on the ASX in 2006 and currently has 300,605,208 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



Edmond Edwards Executive Director of Athena has authorised release of this announcement to the ASX.

Yours faithfully

Ed Edwards
Executive Director
ATHENA RESOURCES LIMITED

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.*	• This Report refers to magnetic susceptibility readings taken from RC drill hole AHRC0091 and AHRC0092. 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 to determine appropriate samples 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.*	• 'Reverse circulation drilling was used to obtain 1 m samples
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*	• Samples recovered from cyclone splitter using 1m interval composites • Collection of RC Chips from sieved sample • No bias was observed between recovery and sample quality or

Criteria	JORC Code explanation	Commentary
	between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	loss or gain
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 dry rotary split
	• *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.*	• Average sample size from splitter was 5kg
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 was a handheld KT-10 with serial number # 8791 using units of 10*-3 Standard SI units

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 • Assays have been verified using standard QA QC methods
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
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.*	Both holes were drilled down dip into the ore body. No bias applies.
	• *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.*	• Tenement referred to in this report M09/168 is 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:* ○ *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.*	• AHRC0091,Collar, 396017mE, 7062836mN. End of hole 90m, RL 310m, Ore Zone 40m, in fresh rock at depth of 44m. • AHRC0043, Collar 396017mE, 7062859mN. End of hole 66m, RL 310m Ore Zone 24m in fresh rock at depth of 42m
	• *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.*	• min max, ave, techniques were used, using magnetic susceptibility data to blend sample representative of the average statistical magnetic susceptibility of the ore.
	• *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.*	• aggregation has been used and is restricted to sample intervals which do not overlap assayed composite boundaries
	• *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 intercept	*These relationships are particularly important in the reporting of Exploration Results.*	The results do not relate to intercept width
	• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported*	The results do not relate to intercept width

Criteria	JORC Code explanation	Commentary
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. The results do not relate to intercept width
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, 3, 4 and 5 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 results for this report
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 report
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	Industrial magnetite product development is ongoing
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	na

INTEREST IN MINING TENEMENTS
Athena Resources Limited 100%

Byro	
E09/1507	E – Exploration License
E09/1552	
E09/1637	
E09/1781	
E09/1938	
M09/166	M- Mining Lease
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 insufficient exploration to define a mineral resource. 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 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 Kelly is an employee of Athena Resources and currently holds securities in the company.