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## MARCH - 2011 QUARTERLY REPORT

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### ATHENA RESOURCES LIMITED

ASX Symbol: **AHN**

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### CONTACTS

Mr Ed Edwards  
Managing Director

### PROJECTS

**Byro:** Iron Ore, Nickel-Copper-  
PGE's

**Ashburton:** Gold and Base metals

### SECURITIES

107.0M Shares - AHN  
33.8M Options - AHNO

### SHAREHOLDERS

Mr E Edwards – 8.5%  
Ishine International – 7.8%  
Mr D Kelly – 6.6%  
Hon A Thomson – 3.7%

### HIGHLIGHTS

#### BYRO PROJECT – IRON ORE

**Athena achieves 100% ownership Byro.**

**Grind size optimization and thin section petrology results indicate Byro Iron Ore to be amongst the highest quality magnetite product in Australia**

- **Optimum Grind size greater than 109µm (microns) with 46% Recovery**
- **71.02% Fe liberation from feed grade of 38.33% Fe with 92.5% Fe<sub>3</sub>O<sub>4</sub> in concentrate**
- **Thin Section Petrology demonstrates coarse magnetite grain size of up to 1.5mm.**

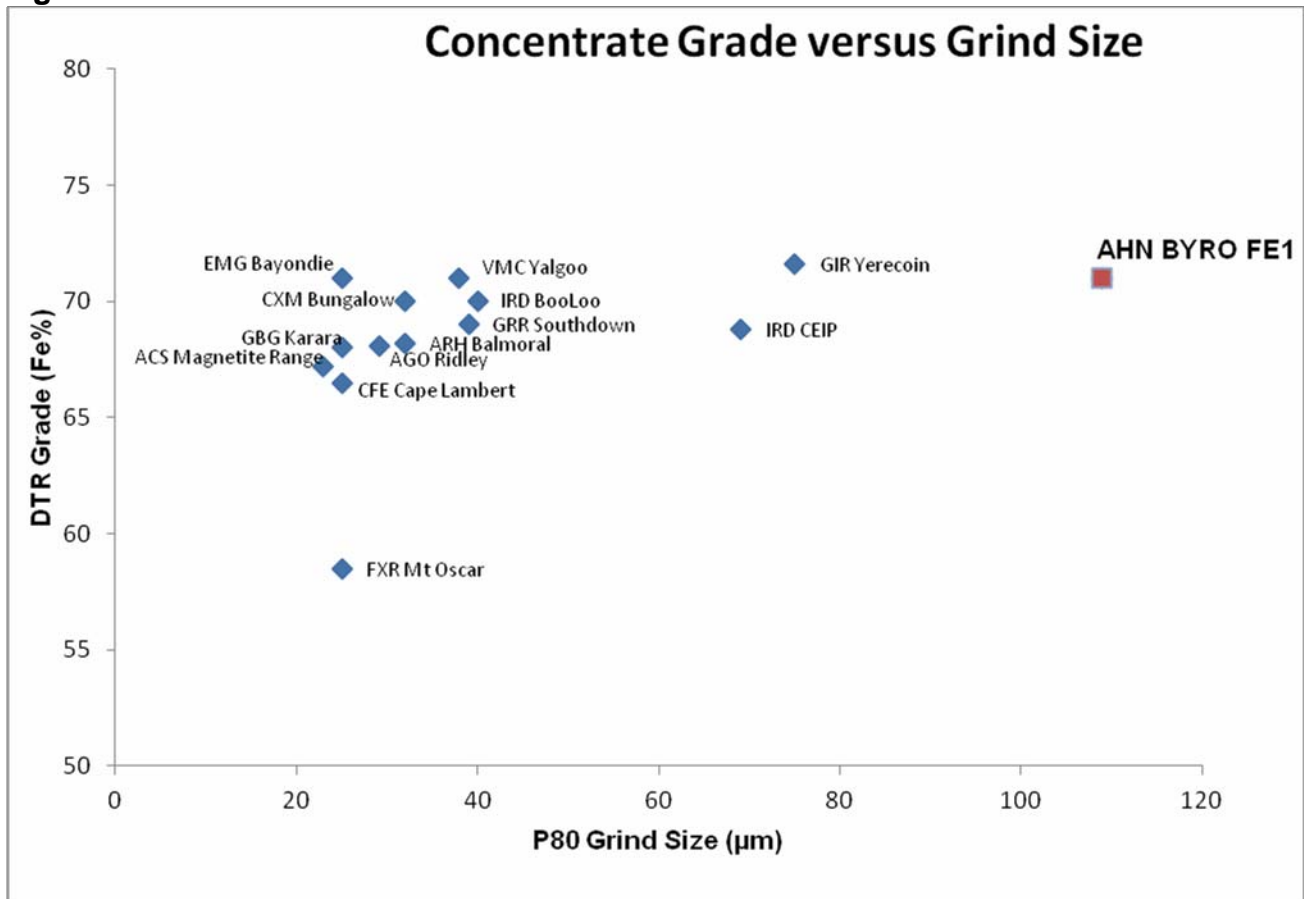
**1. BYRO PROJECT** (Athena Resources 100%)

**BYRO IRON ORE**

During the quarter Athena received extremely positive results from its Grind Optimization test work. The analysis was carried out on the FE1 Ore Body. The magnetite iron ore samples tested were a composite from the first drilling program on the Company’s highly prospective Byro Iron Ore Project in the Mid West region of Western Australia.

The quality of this product can be seen when comparing optimum grind size to Fe liberation with magnetite product throughout Australia.

**Figure 1**



Data source form ASX Announcements platform

The size grinding process of iron ore is exponentially expensive the finer the grind size. The Byro Iron Ore product, plotting to the far right in red, is unsurpassed and has a significant advantage to produce high grade ore at economic rates.

### Grind Size Optimization Results

The grind size optimization analysis for Fe liberation was completed by Amdel Laboratories, Perth. The Sample used was a composite from 11 holes drilled at FE1. DTR Results from grind size tests are below in Tables 1, 2 and 3. At 109 µm grind size a grade of 71.02% Fe in concentrate was achieved with 46% mass recovery and super low impurities.

**Table 1 Feed Grade**

Fe	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	MnO	CaO	P XRF	S XRF	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	LOI	Fe <sub>3</sub> O <sub>4</sub> Sat
38.33	39.61	1.15	0.24	0.20	1.06	0.06	0.09	4.05	0.04	0.06	-1.54	42.60

**Table 2 Grind Size and Recovery**

DTR Work				
P80 Target	P80 Actual	DT Feed	DT Mass Recovery	
		g	con (g)	%
250	292	19.971	10.53	52.7
<b>125</b>	<b>109</b>	<b>20.110</b>	<b>9.24</b>	<b>46.0</b>
75	75	19.982	9.17	45.9
45	43	20.075	9.53	47.5
25	29	20.010	9.29	46.4

**Table 3 Magnetite Concentrate Assays ( Fe% @ µm)**

Actual Grind µm	Chemical Assay (%)												
	Fe	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	TiO <sub>2</sub>	MnO	CaO	P XRF	S XRF	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	LOI	Fe <sub>3</sub> O <sub>4</sub>
292	62.66	10.65	0.65	0.286	0.080	0.25	0.013	0.04	0.96	0.011	0.014	-2.87	83.2
<b>109</b>	<b>71.02</b>	<b>0.83</b>	<b>0.54</b>	<b>0.287</b>	<b>0.060</b>	<b>0.03</b>	<b>0.003</b>	<b>0.01</b>	<b>0.12</b>	<b>0.004</b>	<b>0.001</b>	<b>-3.34</b>	<b>92.5</b>
75	71.04	0.53	0.52	0.278	0.060	0.02	0.002	0.01	0.09	0.004	0.007	-3.39	92.5
43	71.17	0.44	0.51	0.265	0.060	0.02	0.001	0.01	0.08	0.003	0.003	-3.43	94.0
29	71.24	0.42	0.50	0.261	0.060	0.02	0.001	0.01	0.07	0.003	0.006	-3.51	94.2

Fe: Iron; SiO<sub>2</sub>: Silicon Dioxide; Al<sub>2</sub>O<sub>3</sub> : Aluminium Oxide; S:Sulfur; K: Potassium; P: Phosphorus; LOI: Loss On Ignition; Fe<sub>3</sub>O<sub>4</sub>:%: Magnetite

Points to note

- Super low impurities, P, S, MgO, K<sub>2</sub>O, Na<sub>2</sub>O
- Positive oxygen gain on ignition
- Below 1% SiO<sub>2</sub>

**Thin Section Petrology**

In conjunction with grind size optimisation, a petrologic assessment was completed to determine grain size and mineralogy of the ore.

Composition of RC chip samples from petrographic / mineragraphic descriptions were performed by Roger Townend and Associates, the constituents and abundance listed in Table 4 below.

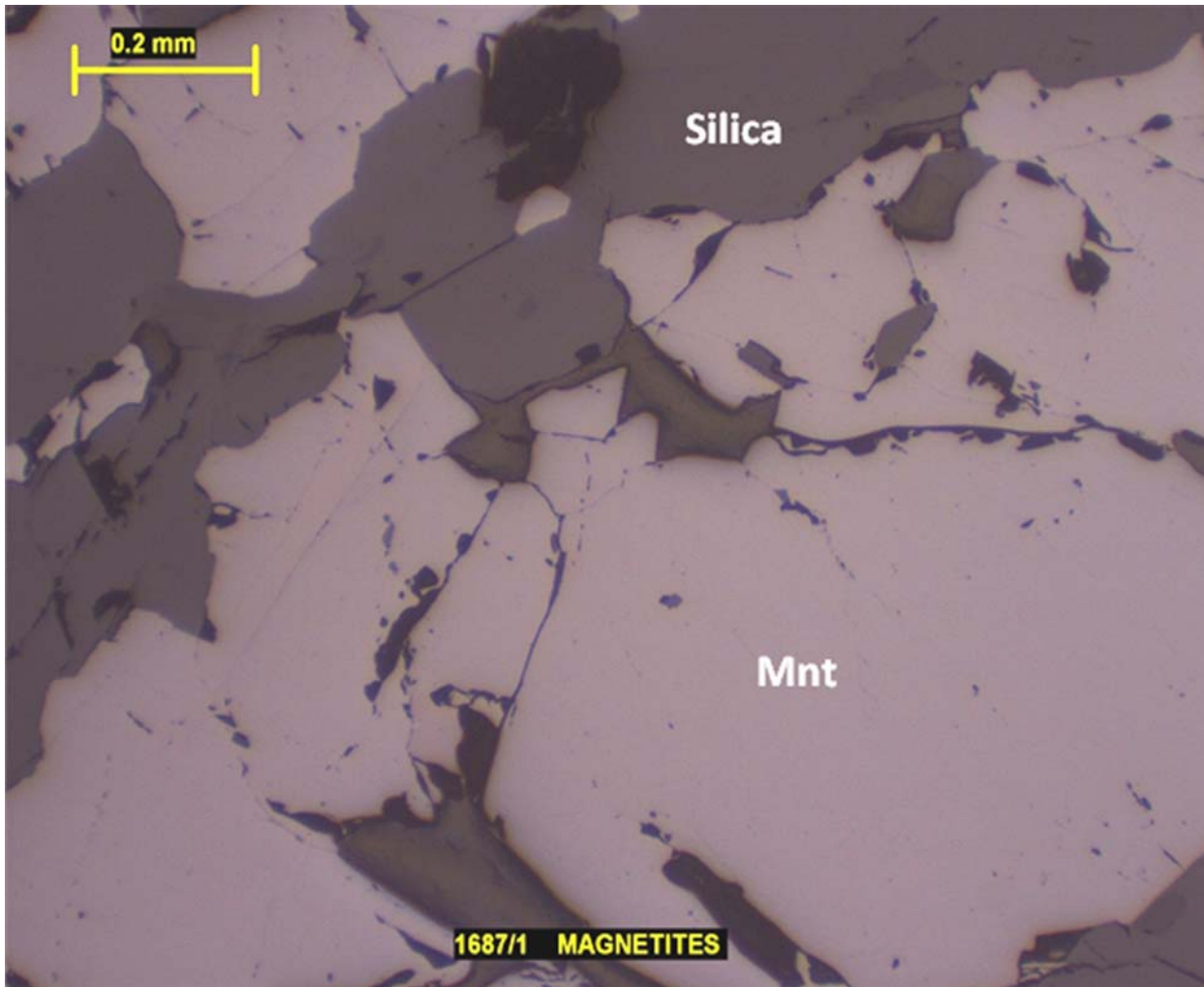
**Table 4**

<b>FERROAN MINERALS</b>	MAGNETITE	MAJOR
	GRUNERITE	MAJOR
	CHALCOPYRITE	TRACE
	PYRITE	ACCESSORY
	PYRRHOTITE	TRACE
	ILMENITE	TRACE
<b>SILICATE MINERALS</b>	QUARTZ	MAJOR
	BIOTITE/CHLORITE	ACCESSORY
	HORNBLLENDE	TRACE

**CLASSIFIED AS A MAGNETITE PYRITE AMPHIBOLE QUARTZITE**

Photomicrographs in plates 1, 2 and 3 show grain size and composition of mineralogy. The plates display magnetite grunerite quartzites, with strong lineation of the minerals. The quartz is granoblastic, and linear, whereas finer amphiboles are idioblastic.

**Plate 1**



The magnetite grains are the major component of all chips. The majority of the grains are coarse grained and elongate (typical dimensions 0.5× 1.5mm) with some alignment in the quartzite, plate 1 above. There is a small quantity of equant fines with grainsizes under 50 microns.

Plate 2 is a close up of dominantly magnetite grains and quartz

**Plate 2**

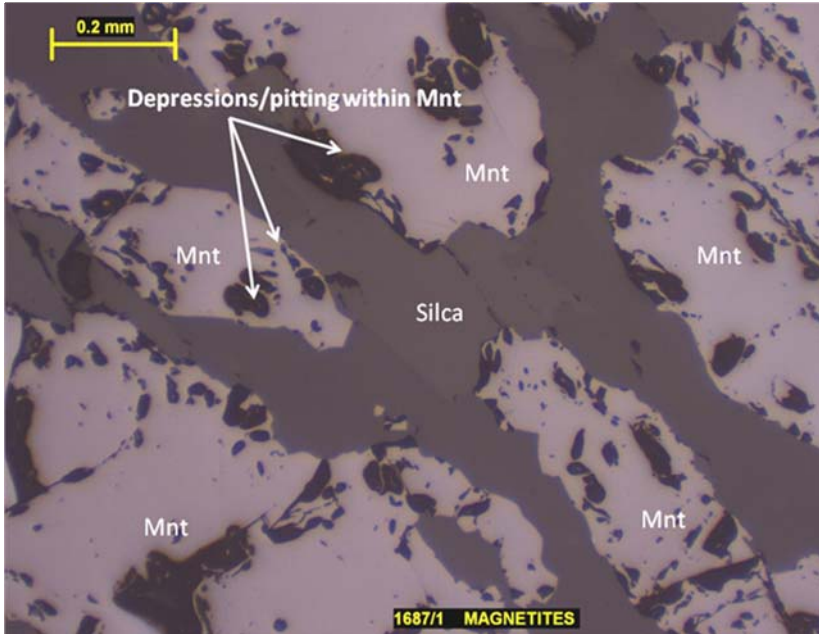


Plate 3 is a close up of the very fine pyrrhotite inclusions in the magnetite demonstrating rare small inclusions within the magnetite

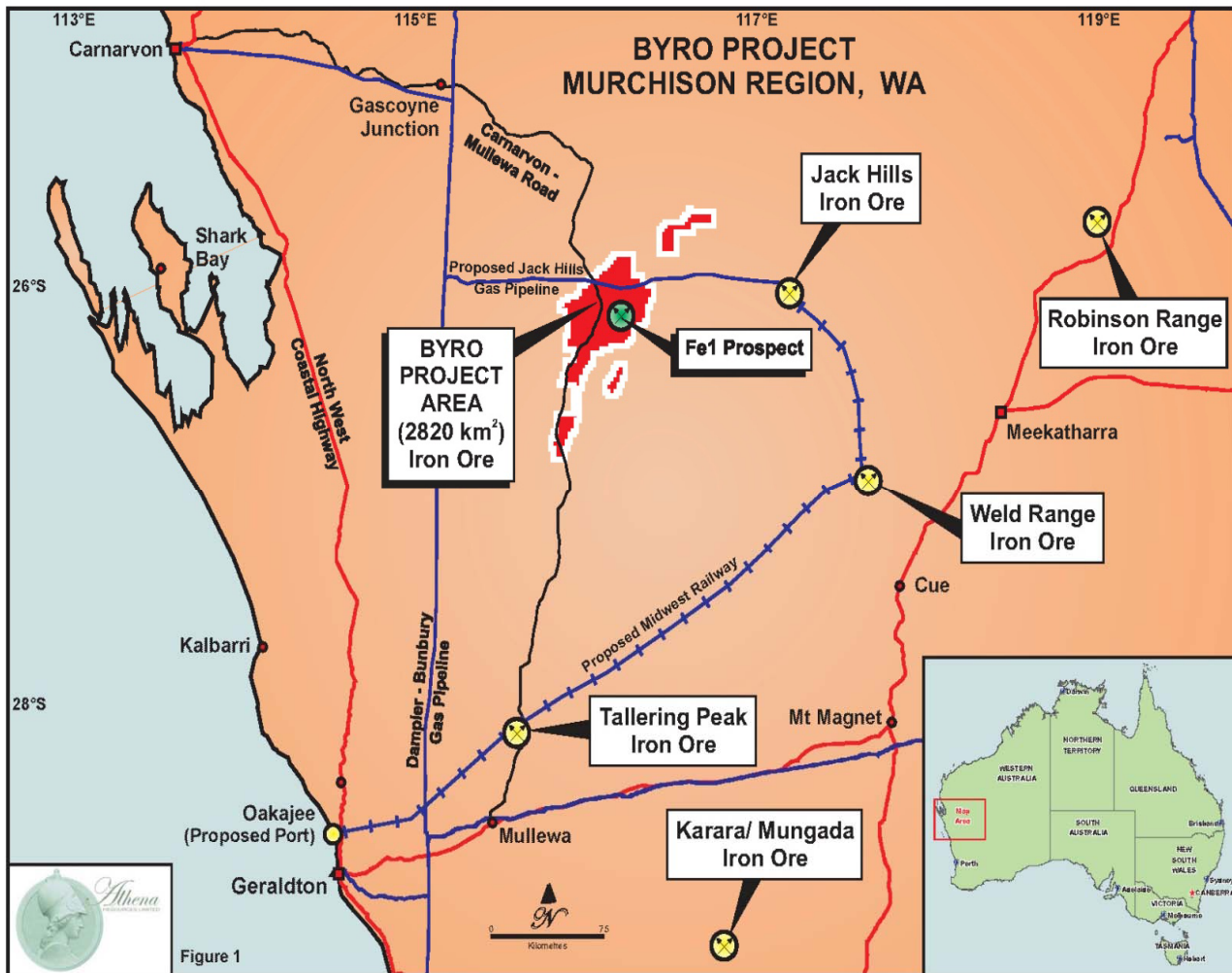
**Plate 3**



**Location**

The FE1 magnetite iron ore located within the Company's Byro Iron Ore Project in the Mid West region of Western Australia will provide a significant boost to the viability of proposed infrastructure in the region including the Oakajee Deep Port and Midwest Rail System, (Figure 2).

**Figure 2**



## **CHINESE TECHNOLOGY DEVELOPMENT CONTRACT**

The quality of this magnetite product is unmistakable. In order to better understand the metallurgy and beneficiation Athena Resources has commissioned further work, currently being carried out in China at the Changsha Research Institute of Mining and Metallurgy, (CRIMM). This work is to refine stage grinding and recovery processes particularly in relation to reduced grinding requirements and hence improved economics for recovery of material. The work also includes low intensity magnetic field strength tests, and separation and analysis of tailings to enable Athena to identify suitable process flow systems.

The 230kg bulk magnetite iron ore samples are at the CRIMM laboratory and testing is underway.

## **WORK TO BE CARRIED OUT IN THE JUNE QUARTER**

Drilling is expected to get underway in mid April to bring a portion of the Byro Iron Ore Project to Inferred Resource and test the additional targets identified in the November field trip and detailed in the ASX announcement on 17 January 2011 and the second quarter activities report.

The work carried out by CRIMM as outlined above will also allow Athena to complete the metallurgy and beneficiation work as part of a Scoping study by the end of 2011. The excellent grind size results have already had a significant, positive impact on the potential outcomes of the Scoping Study.



## **BYRO BASE AND PRECIOUS METALS**

The intrusives identified at Moonborough and Byro East are in a tectonic setting of large scale crustal sutures and rifting, broadly comparable to the major Jinchuan, Voisey's Bay and Raglan deposits.

Athena has confirmed the coincidence of undifferentiated mafics, mineralised pyroxenite, gabbros and ultramafic rocks intruding through deeply buried high grade metamorphic country rocks. This derivation is indicative of a mafic intrusive parentage in an extensional environment through feeder conduits incorporating potential assimilation of country rock. Levels of Ni-Cu and PGE development as determined by assays indicate a fertile system. The Byro tenements are located on the northwestern edge of the Yilgarn Craton, bordering the Carnarvon Basin to the west.

## **BYRO EAST**

At Byro East the results from drilling completed in the Second Quarter included;

- **AHRC0027; 129.7m @ 0.26% Ni from 20m**
- **AHDH0001; 62.7m @ 0.29 % Ni from 149.7m**

Including

0.80m @ 0.33% Ni from 151.4m

1.73m @ 0.31% Ni from 157.4m

4.00m @ 0.31% Ni from 208.4m

This has now added to the prospectivity attributes of the Byro East Intrusive, which include,

- Fertile altered Serpentine Antigorite c/w abundant olivine adcumulate of consistently high MgO (37.3 % < 44.8%).
- Consistent primary Ni sulphide averaging 2736 ppm.
- Anomalous zones of increased sulphur, chrome, nickel, copper and PGE's.
- Upgrade of pentlandite to millerite during serpentinisation.

Athena's exploration of this intrusive body will now advance to indentifying the variation in geochemistry and define possible pulses while exploring for concentrations of sulphides, feeder pipes and potential trap sites through which fertile magma has flowed.

## **WORK TO BE CARRIED OUT IN THE JUNE QUARTER**

The Byro East intrusive drilling is co-funded by the Western Australian Government – Industry Drilling Program which enabled a diamond drill hole at Byro East to be included in Athena’s RC drilling program. It is intended to continue this diamond hole to a depth of approx 400m as part of our obligation under the funding arrangement.

Further work on the base metals targets will await completion of the JORC resource on the iron ore.

### **2. ASHBURTON PROJECT (Athena Resources 100%, P08/493 95%, M08/189 90%)**

No field work was carried out on the Ashburton Project in the March Quarter.

### **3. CORPORATE**

During the quarter Athena completed a capital raising of \$2.2 million by the placement of approximately 27.5 million ordinary fully-paid shares in Athena, at 8 cents per share. The proceeds of the placements are for the ongoing exploration program on the Byro Iron Ore project including production of a JORC Resource.

Athena announced that it has settled the acquisition of Byro Exploration Pty Ltd (formally Lightwave Investments Pty Ltd) (ACN 105 744 223) owner of 20% of the Byro Project. This has given Athena 100% ownership of the Byro Project.

Athena paid a deposit of \$50,000 and \$950,000 on settlement and issued to the Vendor, 3,000,000 fully paid ordinary shares. The cash component was financed by the placement of 10.9 million shares at 11 cents.

E W Edwards  
Managing Director  
18 April 2011

The technical information relating to Athena’s exploration projects 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, 2004 edition)*”. Mr Kelly consents to this inclusion of the information in this report in the context and format in which it appears.