



Haoma Mining NL

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September 20, 2019

Haoma Shareholder Recent Activities Update

Operations at Bamboo Creek

- 1) Haoma has now re configured the Bamboo Creek Plant to process Bamboo Creek Scree from Kitchener Mining Leases (M45/480 and M45/481). Initially about 2,500 tonnes were processed to produce a concentrate of 0.1% of the bulk sample measuring about 1,400g/t, ie about 1.4 g/t gold 'back calculated' to the bulk sample processed.

Additional free gold was also removed representing an additional 'back calculated' gold grade between 0.1g/t and 0.3g/t.

- 2) Over the last 3 months processing of Trial bulk samples has produced Scree Concentrates representing between 2.5% and 3.5% of Bamboo Creek Scree from Kitchener Mining Leases (M45/480 and M45/481).
- 3) During the last 2 weeks 7 tonnes of Scree Concentrates (recovered from 300 tonnes of Bamboo Creek Scree) was processed and produced 593.38g of bullion which contained 439.72g of gold with the remainder mainly silver:
 - a) 115.91g bullion – 78% gold (XRF measurement) is 90.51g of gold, and
 - b) 477.47g bullion – 73.14% gold (XRF measurement) is 349.21g of gold.



- 4) The above recovered gold represents a 1.47g/t gold grade 'back calculated' to the 300 tonne Bamboo Creek Scree bulk sample processed.
- 5) The Bamboo Creek Plant can now continuously process Bamboo Creek Scree Concentrates at about 3.5 tonnes per day. At this processing rate the value of gold produced more than covers Haoma's present Bamboo Creek operating costs.
- 6) On May 22, 2019 Haoma shareholders were advised the **Elazac Gravimetric Assay Process** was used to assay samples of Bamboo Creek Tailings and measured **244.8 g/t gold based on physical recovered gold from a sample Bamboo Creek Tailings**. (Previous grade from physical gold recovered: 161.01g/t – See Haoma Shareholder Report May 8, 2019)
- 7) Work is continuing on using the Elazac Process on all samples so additional gold, silver, platinum group metals (PGM) and Rare Earths is recovered from Bamboo Creek Scree, Bamboo Creek Tailings and 'low grade' Mt Webber iron ore.

Rare Earths (See descriptions in attached Appendix A)

During the last week numerous quantities of valuable Rare Earths including **Terbium or Tb (65)**, **Thulium or Tm (69) and Europium or Eu (63)** have been measured by XRF at the University of Melbourne in samples of Bamboo Creek Tailings; and a Bamboo Creek Tailings Concentrate (about 6.33% of the Bamboo Creek Tailings).

- 1) Rare Earths measured in **Bamboo Creek Tailings** were as follows:
 - **0.73% Terbium or Tb (65)**; and
 - **0.32% Europium or Eu (63)**
- 2) Rare Earth measured in **Bamboo Creek Tailings Concentrate** was as follows:
 - **0.27% Thulium or Tm (69)**

Test work at Bamboo Creek and the University of Melbourne on measuring and recovering Rare Earths is continuing on samples from Bamboo Creek Scree, Bamboo Creek Tailings and ‘low grade’ Mt Webber iron ore.

In addition potential European, UK, US and Asian refineries of Rare Earths are being investigated.

Sales of ‘hard rock’ from Haoma’s Elazac Quarry at Cookes Hill (M45/1186)

During the Year Ended June 30, 2019, Haoma sold 139,421 tonnes of ‘hard rock’ to Brookdale Contractors from stockpiles at Haoma’s Elazac Quarry located at Cookes Hill.

These sales provided revenue of \$697,105.

Brookdale is a significant supplier to infrastructure projects in the Pilbara and is continuing to source ‘hard rock’ from Haoma.

GROUP CONSOLIDATED FINANCIAL RESULT TO JUNE 30, 2019

Haoma Mining NL Consolidated Profit & Loss	2017/18 Full Year (\$m)	2018/19 First Half Year (\$m)	2018/19 Second Half Year (\$m)	2018/19 Full Year (\$m)
Operating Revenue:				
Gold & Silver Sales	0.01	-	0.02	0.02
Rock Sales	0.32	0.11	0.59	0.70
Royalties	0.04	0.01	-	0.01
Retail Sales & Misc.	0.27	0.08	0.09	0.17
Operating Revenue	0.64	0.20	0.70	0.90
Other Income – profit on sale of assets	1.90	-	-	-
Total Revenue	2.54	0.20	0.70	0.90
Operating profit (loss) before interest, depreciation, amortisation, exploration & development costs:	1.03	(0.98)	0.14	(0.84)
Interest	(1.96)	(1.08)	(1.00)	(2.08)
Depreciation & amortization	(0.19)	(0.10)	(0.11)	(0.21)
Exploration, development & test work	(2.78)	(0.92)	(1.58)	(2.50)
Operating (loss) before tax	(3.90)	(3.08)	(2.55)	(5.63)

Haoma’s Group Consolidated Result

Haoma Mining’s unaudited consolidated financial result for the year ended June 30, 2019 was a before tax loss of \$5.84 million after interest of \$2.29 million, depreciation and amortisation of \$0.21 million, and development and test work expenditure of \$2.50 million.

Funding of Operations

Haoma presently earns revenue from sales of hard rock, retail & accommodation sales. It is anticipated that future earnings from precious metal production will eventually provide significant income. Revenue derived from business operations may be supplemented by one-off sales of assets or other commercial arrangements in relation to asset holdings. To the extent that these combined activities do not provide sufficient funds for operations, funding for the consolidated group is provided by The Roy Morgan Research Centre Pty Ltd, a company owned and controlled by Haoma's Chairman, Gary Morgan.

The Roy Morgan Research Centre Pty Ltd has given an assurance that repayment of accumulated debt will not be required until Haoma's annualised EDITDA exceeds \$15 million per annum and that at that time debt repayments would not be required to exceed 50% of Haoma's EBITDA in any year. Notwithstanding that there is no immediate requirement for repayment of funding, the Directors regularly review the level of debt. In the event that Haoma at that time has a cash surplus in excess of short term funding requirements the Directors may elect to make a voluntary repayment of funds to The Roy Morgan Research Centre Pty Ltd.

At June 30, 2019 the principal debt to The Roy Morgan Research Centre Pty Ltd was \$41.40 million. Interest accrued for the year to June 30, 2019 was \$2,078,686. Total interest accrued and unpaid to June 30, 2019 is \$33.993 million. Interest on debt to Roy Morgan Research Centre accrues at the 30 day commercial bill rate plus a facility margin of 1%.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Gary Morgan", with a long horizontal flourish extending to the right.

**Gary C Morgan,
Chairman**

Appendix A: Rare Earths

Rare Earths are a series of chemical elements found in the Earth's crust that are vital to many modern technologies.

There are 17 elements that are considered to be Rare Earth elements: 15 elements in the lanthanide series and two additional elements that share similar chemical properties. They are listed below in order of atomic number:

Scandium or Sc (21)

Scandium, a silvery-white metal, is a non-lanthanide rare earth. It is used in many popular consumer products, such as televisions and fluorescent or energy-saving lamps. In industry, the primary use of scandium is to strengthen metal compounds. The only concentrated sources of scandium currently known are in rare minerals such as thortveitite, euxenite, and gadolinite from Scandinavia and Madagascar.

Yttrium or Y (39)

Yttrium is a non-lanthanide rare earth element used in many vital applications, such as superconductors, powerful pulsed lasers, cancer treatment drugs, rheumatoid arthritis medicines, and surgical supplies. A silvery metal, it is also used in many popular consumer products, such as color televisions and camera lenses.

Lanthanum or La (57)

This silver-white metal is one of the most reactive rare earth elements. It is used to make special optical glasses, including infrared absorbing glass, camera and telescope lenses, and can also be used to make steel more malleable. Other applications for lanthanum include wastewater treatment and petroleum refining.

Cerium or Ce (58)

Named for the Roman goddess of agriculture, Ceres, cerium is a silvery-white metal that easily oxidizes in the air. It is the most abundant of the rare earth elements and has many uses. For instance, cerium oxide is used as a catalyst in catalytic converters in automotive exhaust systems to reduce emissions, and is highly desirable for precision glass polishing. Cerium can also be used in iron, magnesium and aluminum alloys, magnets, certain types of electrodes, and carbon-arc lighting.

Praseodymium or Pr (59)

This soft, silvery metal was first used to create a yellow-orange stain for ceramics. Although still used to color certain types of glasses and gemstones, praseodymium is primarily used in rare earth magnets. It can also be found in applications as diverse as creating high-strength metals found in aircraft engines and in flint for starting fires.

Neodymium or Nd (60)

Another soft, silvery metal, neodymium is used with praseodymium to create some of the strongest permanent magnets available. Such magnets are found in most modern vehicles and aircraft, as well as popular consumer electronics such as headphones, microphones and computer discs. Neodymium is also used to make high-powered, infrared lasers for industrial and defense applications.

Promethium or Pm (61)

Although the search for the element with atomic number 61 began in 1902, it was not until 1947 that scientists conclusively produced and characterized promethium, which is named for a character in Greek mythology. It is the only naturally radioactive rare earth element, and virtually all promethium in the earth's crust has long ago decayed into other elements. Today, it is largely artificially created, and used in watches, pacemakers, and in scientific research.

Samarium or Sm (62)

This silvery metal can be used in several vital ways. First, it is part of very powerful magnets used in many transportation, defense, and commercial technologies. Second, in conjunction with other compounds for intravenous radiation treatment it can kill cancer cells and is used to treat lung, prostate, breast and some forms of bone cancer. Because it is a stable neutron absorber, samarium is used to control rods of nuclear reactors, contributing to their safe use.

Europium or Eu (63)

Named for the continent of Europe, europium is a hard metal used to create visible light in compact fluorescent bulbs and in color displays. Europium phosphors help bring bright red to color displays and helped to drive the popularity of early generations of color television sets. Fittingly, it is used to make the special phosphors marks on Euro notes that prevent counterfeiting.

Gadolinium or Gd (64)

Gadolinium has particular properties that make it especially suited for important functions, such as shielding in nuclear reactors and neutron radiography. It can target tumors in neuron therapy and can enhance magnetic resonance imaging (MRI), assisting in both the treatment and diagnosis of cancer. X-rays and bone density tests can also use gadolinium, making this rare earth element a major contributor to modern health care solutions.

Terbium or Tb (65)

This silvery rare earth metal is so soft it can be cut with a knife. Terbium is often used in compact fluorescent lighting, color displays, and as an additive to permanent rare earth magnets to allow them to function better under higher temperatures. It can be found in fuel cells designed to operate at elevated temperatures, in some electronic devices and in naval sonar systems. Discovered in 1843, terbium in its alloy form has the highest magnetostriction of any such substance, meaning it changes its shape due to magnetization more than any other alloy. This property makes terbium a vital component of Terfenol-D, which has many important uses in defense and commercial technologies.

Dysprosium or Dy (66)

Another soft, silver metal, dysprosium has one of the highest magnetic strengths of the elements, matched only by holmium. Dysprosium is often added to permanent rare earth magnets to help them operate more efficiently at higher temperatures. Lasers and commercial lighting can use dysprosium, which may also be used to create hard computer disks and other electronics that require certain magnetic properties. Dysprosium may also be used in nuclear reactors and modern, energy-efficient vehicles.

Holmium or Ho (67)

Holmium was discovered in 1878 and named for the city of Stockholm. Along with dysprosium, holmium has incredible magnetic properties. In fact, some of the strongest artificially created magnetic fields are the result of magnetic flux concentrators made with holmium alloys. In addition to providing coloring to cubic zirconia and glass, holmium can be used in nuclear control rods and microwave equipment.

Erbium or Er (68)

Another rare earth with nuclear applications, erbium can be found in neutron-absorbing control rods. It is a key component of high-performance fiber optic communications systems, and can also be used to give glass and other materials a pink color, which has both aesthetic and industrial purposes. Erbium can also help create lasers, including some used for medical purposes.

Thulium or Tm (69)

A silvery-gray metal, thulium is one of the least abundant rare earths. Its isotopes are widely used as the radiation device in portable X-rays, making thulium a highly useful material. Thulium is also a component of highly efficient lasers with various uses in defense, medicine and meteorology.

Ytterbium or Yb (70)

This element, named for a village in Sweden associated with its discovery, has several important uses in health care, including in certain cancer treatments. Ytterbium can also enhance stainless steel and be used to monitor the effects of earthquakes and explosions on the ground.

Lutetium or Lu (71)

The last of the rare earth elements (in order of their atomic number) has several interesting uses. For instance, lutetium isotopes can help reveal the age of ancient items, like meteorites. It also has applications related to petroleum refining and positron emission tomography. Experimentally, lutetium isotopes have been used to target certain types of tumors.