MAGNETITE MINES LIMITED
Making Steel Stronger

ASX Announcement and Media Release

13 September 2016

Metallurgical Update – Positive Results

- **Mawson Iron Project concentrate produces high quality pellets at Chinese research centre**
- **Sighter metallurgical tests of adit stockpile produces 68% Fe concentrate, confirming again that a high quality product can be produced from the Razorback Deposit**
- **Progress in processing flowsheet design, with sighter testwork utilising 'Reflux Classifier' technology successfully producing the targeted 68% Fe concentrate grade**
- **HPGR testwork underway to determine its potential application to the project processing flowsheet versus SAG milling**

The Board of Magnetite Mines Limited (ASX:MGT) (**Company**) is very pleased to announce the positive outcomes with an update of the current metallurgical testwork and development of our flowsheet.

As announced to the ASX on 14 June 2016, the Company was commencing a comminution and magnetite liberation optimization study in preparation for the Definitive Feasibility Study (DFS) of the Razorback Deposit in the Mawson Iron Project, South Australia. The proposed processing flowsheet from the 2012 Prefeasibility Study (PFS) had both magnetite and hematite recovery. However, subsequent work has shown that a magnetite only circuit is a more viable option. The changes to the processing flowsheet will see significant OPEX and CAPEX savings, as well as potentially better magnetite recoveries and higher Fe concentrate grades. A by-product of this current work is that magnetite concentrate has now become available for marketing and for testwork for pellets and sinter. The following is an update of this work:

Pelletizing

Recently produced 68% Fe concentrate from the Razorback Deposit (ASX release 27 June 2016) was sent to the China Iron and Steel Research Institute (CISRI) for pelletizing testwork. Preliminary results have shown high quality blast furnace pellets with high cold compressive strength and excellent reducibility can be achieved. Work is ongoing and a final report is anticipated in the coming weeks. A comprehensive sintering test program is also planned.

ABN: 34 108 102 432 | 118B Glen Osmond Rd, Parkside, Adelaide, SA, 5063 |
email: info@magnetitemines.com | www.magnetitemines.com | Tel: + 61 8 8427 0516 | Fax: + 61 8 8427 0515

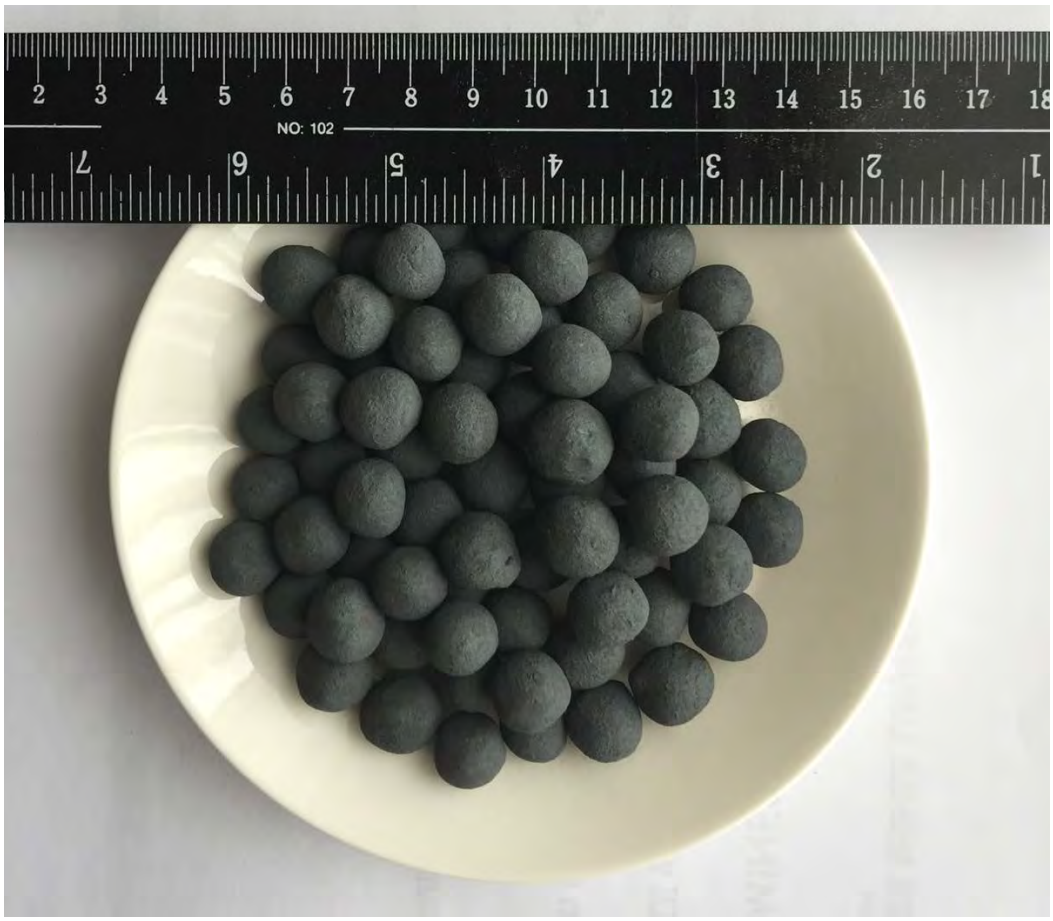

*Figure 1. Pellets made from R*azorback Depo*sit 68% Fe concentrate*

Adit Testwork

A 70 kg sighter metallurgical test was carried out on a representative sample collected from the Adit muck pile at Razorback Ridge (Figure 2), which has several hundreds of tonnes available. The 123 metre-long adit was dug during the 50's and 60's by the South Australian Mines Department, as part of their bulk metallurgical testwork completed on the deposit. The adit material represents Unit B in the stratigraphy and was previously used for PFS level studies, however during this case, it was sampled from the adit walls, not the pile outside. There was some uncertainty of the sample integrity of the muck pile, given it has been exposed to the weather for the past 60 years. This testwork, in addition to reflected light microscopy of representative material, now indicates it's is suitable for further use, in particular for the DFS. Results from this work demonstrates that a 68% Fe concentrate was again achieved (Table 1), confirming that the ore body can consistently produce a high grade product.

The work was completed at Bureau Veritas Minerals in Perth and used the same procedures to earlier work reported to the ASX on 27 June 2016, utilising a conventional magnetite beneficiation processing flowsheet consisting of:

1. Coarse grinding;
2. Rougher low intensity magnetic separation (LIMS), achieving 59% rejection;
3. Fine grinding to 38 micron (P95);
4. 3 Stage cleaner LIMS, achieving 64.4% Fe concentrate; and
5. Final Clean-Up with gravity separation, using Wilfley Wet Tables.

Table 1. Results of adit muck pile sighter testwork, Razorback Deposit

Mass (kg)	Mass Recovery	Rougher Rejection %	Concentrate Assay Grades*				
			Fe %	SiO_2 %	Al_2O_3 %	P %	S %
70	16.2	58.6	68.0	4.06	0.38	0.01	trace

**Assay grades based on XRF analysis*

Figure 2. Recent sampling from the Adit pile at Razorback Ridge

Reflux Classifier

Previous metallurgical work completed at the Razorback Deposit have shown that magnetic separation alone is unlikely to produce 68% Fe concentrate target, and will most likely require a gravity-related clean up after 3-stage LIMS to obtain the target grade. This work used Wilfley Tables to reach the benchmark grade, however this method of gravity clean-up is not a suitable technique that can be scaled-up to a full production scenario at Razorback. Therefore, the company is currently embarking on an investigation into other methods, which has included the application of the Reflux Classifier, which uses relativity new, fine particle gravity-based, separation technology.

The sighter work completed at Bureau Veritas Minerals in Perth was completed on a 1 kg sample reserved from previous testwork (ASX announcement 27 June 2016), which had undergone 3 stage LIMS to produce

a concentrate grade of 66.6% Fe. This feed sample was run through the Reflux Classifier, which successfully upgraded the concentrate to 68.9% Fe, and mass recovery to 16.4%, demonstrating similar or even better results to that seen from the previous Wilfley Table testwork (see Table 2). To build from these positive results, a larger scale test will now be carried out. Other gravity methods will also be examined.

Table 2. Comparison of Wilfey Table results (July 2016) and Sighter test results of Reflux Classifier, Razorback Deposit

Sample	Mass (kg)	Mass Recovery	Concentrate Assay Grades*				
			Fe %	SiO_2 %	Al_2O_3 %	P %	S %
Sighter –Wilfley Table	20	16.2	68.0	4.22	0.43	0.01	trace
Bulk – Wilfley Table	3,218	14.6	68.8	3.33	0.35	0.01	trace
Sighter –Reflux Classifier	1	16.8	68.8	3.31	0.40	0.01	trace

**Assay grades based on XRF analysis*

HPGR Testwork

The PFS contained a SAG mill at the primary stage of the processing flowsheet. While SAG milling is a conventional method of milling in the mining industry, more recently many magnetite projects worldwide have applied HPGR (high pressure grinding rolls), which potentially have the advantage of processing dry and can have lower power consumption. In addition, HPGR has the advantage in the way it breaks its material at grain boundaries rather than across the grains, which can provide the benefit of better mass recovery, and higher Fe concentrate grades.

HPGR Testwork is currently underway at SGS Laboratories in Perth, to look at suitability of application to the Razorback Deposit. Material has also been sent to the USA for additional testwork.

For further information contact:

Gordon Toll
Chairman and Chief Executive Officer
+61 8 8427 0516

Peter Schubert
Non-Executive Director
+61 416 375 346