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## **POSITIVE METALLURGICAL RESULTS – TUCANO CIL GOLD TAILINGS MAGNETIC SEPARATION PROJECT**

Beadell Resources Limited (**Beadell**) is pleased to announce the results of the definitive metallurgical test work program and preliminary iron concentrate by-product production schedule for the Company's Tucano gold project in Brazil. The results indicate a production rate of 400,000 – 500,000 tonnes per annum of concentrate, life of mine, from the Magnetic Separation Plant (Table1).

Beadell's Managing Director Peter Bowler commented "This is an exciting development following extensive testing of our CIL gold tailings and confirms the robustness of this cost saving initiative. This has the potential to reduce our site gold cash costs by 20 – 30%.

Detailed Engineering design is well advanced with the long lead items currently out for tender and Capex estimate remaining at \$10 - 15M with the plant commissioning date scheduled for the fourth quarter 2012.

Whilst this will be an add-on to the new CIL gold plant, no delays to first gold pour will result from this initiative and Beadell remains a gold focussed company."

The iron ore concentrate, to be produced from the Magnetic Separation Plant, is separate from the potential to produce additional product from Beadell's iron ore resources within the optimised gold pits. As previously announced, Beadell is in discussions with third parties to unlock significant additional value from these resources and is building a high grade stockpile, currently in excess of 200,000 tonnes at 42% Fe.

### **Iron Concentrate Production Estimates**

A life of mine estimate of iron ore concentrate produced by magnetic separation from gold tailings is presented in Table 1 below. Production estimates vary between **400,000 and 500,000 tonnes per annum at circa 64% Fe, 4% SiO<sub>2</sub>, 1% Al<sub>2</sub>O<sub>3</sub> and 0.06% P**. The production schedule reflects the progressive contributions of gold ore sources from Tap AB, Tap C and Urucum open pits, under Beadell's current life of mine plan.

The first three years is dominated by oxide gold ore through the plant with higher iron grade and lower contaminants, followed progressively by more sulphide dominant gold ores. Both oxide

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and fresh gold ores produce high quality iron ore concentrates with the oxide dominated by kenomagnetite and the sulphide ore by magnetite.

Year	Iron Concentrate Produced at 115 micron wet tonnes	Fe %	SiO2 %	Al2O3 %
2012*	67,000	64.5	3.4	1.3
2013	503,000	64.1	3.9	1.2
2014	464,000	64.2	4.3	1.1
2015	396,000	63.2	4.3	1.2
2016	504,000	63.9	4.4	1.2
2017	496,000	63.4	4.5	1.2
2018	482,000	63.3	4.5	1.2
2019	495,000	63.0	4.6	1.3

\*2012 start up year, 2 months of processing scheduled

**Table 1. Estimated Iron Concentrate Production from the magnetic separation of gold tailings at a grind size of 115 micron**

### Logistics and Potential Cash Flow Estimates

Discussions concerning logistics and off-take have commenced with several options available to the Company. Transport costs utilising the State owned railway to the Port of Santana and the privately owned port handling facilities are estimated to be US\$25 to 35 per tonne.

Low Net Operating Costs of approximately US\$5 - 10 per tonne are due to the low power and manning levels required to run the magnetic separation plant and less total tonnes of gold tailings going to the tailings dam.

Based on the pricing of a comparable high grade iron ore product currently being exported from the Port of Santana, Beadell estimates it could receive US\$100 - 120 per tonne FOB Port of Santana, at current iron prices.

The planned production of iron ore concentrate from the gold tailings has the potential to reduce the site gold cash costs by 20 – 30%.

### Metallurgical Test Results

An extensive metallurgical test work program has been undertaken. The program entailed 4 independent composite suites, including re-analysis of the gold master composites used in the Tucano Definitive Feasibility Study. Additional testwork included a lithology specific program, a tailings simulation suite and a mine production schedule selected to emulate source rock material from the various pits over time.

Approximately 900 m of drill core totalling in excess of 530 individual samples were selected from all parts of the three main open pits to make up the various composites. Table 1 summarises the results of the Davis Tube tests for all the composites.

The Davis Tube results highlight that approximately 10% of the gold tailings ground to 45 µm are recoverable to an iron ore concentrate produced from a conventional magnetic separation process (Figure 1). A high quality iron concentrate is produced, in the order of **68% Fe, 0.2% Al, 0.4% Mn, 0.02% P and 0.7% Si.**

The Tucano gold plant is scheduled to process 3.5 million tonnes per annum at a courser grind of 115 µm. The test work on the magnetic separation reveals that as the grind size coarsens from 45 µm to 115 µm, the mass of iron concentrate produced increases significantly.

Grind size sensitivity was performed on the Master composite which showed a 60% increase in concentrate mass from 45 µm to 106 µm (Table 1). For the coarser grind, the concentrate iron grade drops and contaminants increase proportionally, but remain at a high quality, creating a highly desired iron concentrate.

Metallurgical Study	Composite	Magnetic Concentrate	Fe	Al	Mn	P	Si	LOI
	All tests done at 45 µm, unless otherwise stated	%	%	%	%	%	%	%
Gold Tailings	Urucum Sulphide 1 Blend	9.6	<b>66.5</b>	0.22	0.4	0.01	1.6	-1.59
Gold Tailings	Urucum Sulphide 2 Blend	8.4	<b>66.8</b>	0.2	0.4	0.01	1.4	-1.56
Gold Tailings	Urucum Oxide 1 Blend	4.8	<b>69.6</b>	0.12	0.3	0.02	0.5	-1.75
Gold DFS	Tap AB oxide	4.1	<b>69</b>	0.21	0.5	0.03	0.2	-0.44
Gold DFS	Urucum oxide	3.3	<b>70.2</b>	0.18	0.1	0.02	0.3	-1.63
Gold DFS	Tap AB sulphide	14	<b>66.6</b>	0.24	0.6	0.01	1.3	-2.66
Gold DFS	Urucum sulphide	11.6	<b>68</b>	0.12	0.2	0.01	1	-0.92
Pit Production	Tap AB 2012	4.7	<b>68.3</b>	0.14	0.5	0.02	0.8	-1.47
Pit Production	Tap AB 2013	8.1	<b>68.4</b>	0.12	0.7	0.01	0.6	-1.74
Pit Production	Tap AB 2014	12.4	<b>68.1</b>	0.11	0.7	0.01	1	-2.55
Pit Production	Tap C 2012	13.5	<b>69.1</b>	0.15	0.2	0.03	0.5	-0.22
Pit Production	Tap C 2013	11.2	<b>65.1</b>	0.98	1.1	0.03	1	1.05
Pit Production	Tap C 2014	11.4	<b>69</b>	0.25	0.4	0.01	0.4	-1.47
Iron Study	High Grade Stockpile	2.2	<b>67.9</b>	0.32	0.5	0.04	0.5	0.16
Iron Study	Transitional	37.7	<b>70</b>	0.17	0.3	0.02	0.2	-1.6
Iron Study	Spent Ore Stockpile	7.6	<b>68.1</b>	0.26	0.5	0.03	0.4	-0.43
Iron Study	Saprolite	14.7	<b>69.3</b>	0.18	0.3	0.03	0.4	-0.89
Iron Study	Colluvium	4.3	<b>66.9</b>	0.45	0.5	0.03	0.6	0.42
Iron Study	Master comp 45 µm	14.1	<b>69.6</b>	0.17	0.3	0.02	0.3	-1.16
Iron Study	Master comp 75 µm	18.8	<b>65.3</b>	0.56	0.5	0.05	1.5	0.77
Iron Study	Master comp 106 µm	22.6	<b>66.9</b>	0.22	0.5	0.06	1.3	-0.32
Average		11.4	<b>68.0</b>	<b>0.26</b>	<b>0.4</b>	<b>0.02</b>	<b>0.8</b>	<b>-0.95</b>

Table 2. Davis Tube Magnetic Separation Test Results

Grind Size	Magnetic Concentrate %	Fe %	Al %	Mn %	P %	Si %	S %
45 micron	16.2	67.2	0.35	0.49	0.03	1.23	0.001
75 micron	16.1	67.7	0.26	0.50	0.03	1.00	0.002
115 micron	17.0	68.2	0.24	0.46	0.03	1.20	0.02

Table 3. LIMS Test Results on Master Composite

Additional LIMS testing of the Master composite also showed high concentrate iron grades, low contaminants and a high mass reporting to the magnetic concentrate as a proportion of the total sample (Table 3).

The mineralogy of the iron ore within the gold tailings is dominated by liberated and clean grains of hematite and magnetite minerals ranging from partially oxidised magnetite in the form

kenomagnetite to martitisation of magnetite to form hematite. Only minor amounts of other iron bearing minerals are apparent (12% of iron mass). The close intertwined relationship between magnetite and hematite in the oxide zones is thought to be the reason that more iron is recovered by magnetic separation at a coarser grind size due to the capture of extra hematite and other minerals that remain interconnected at coarser grind sizes.

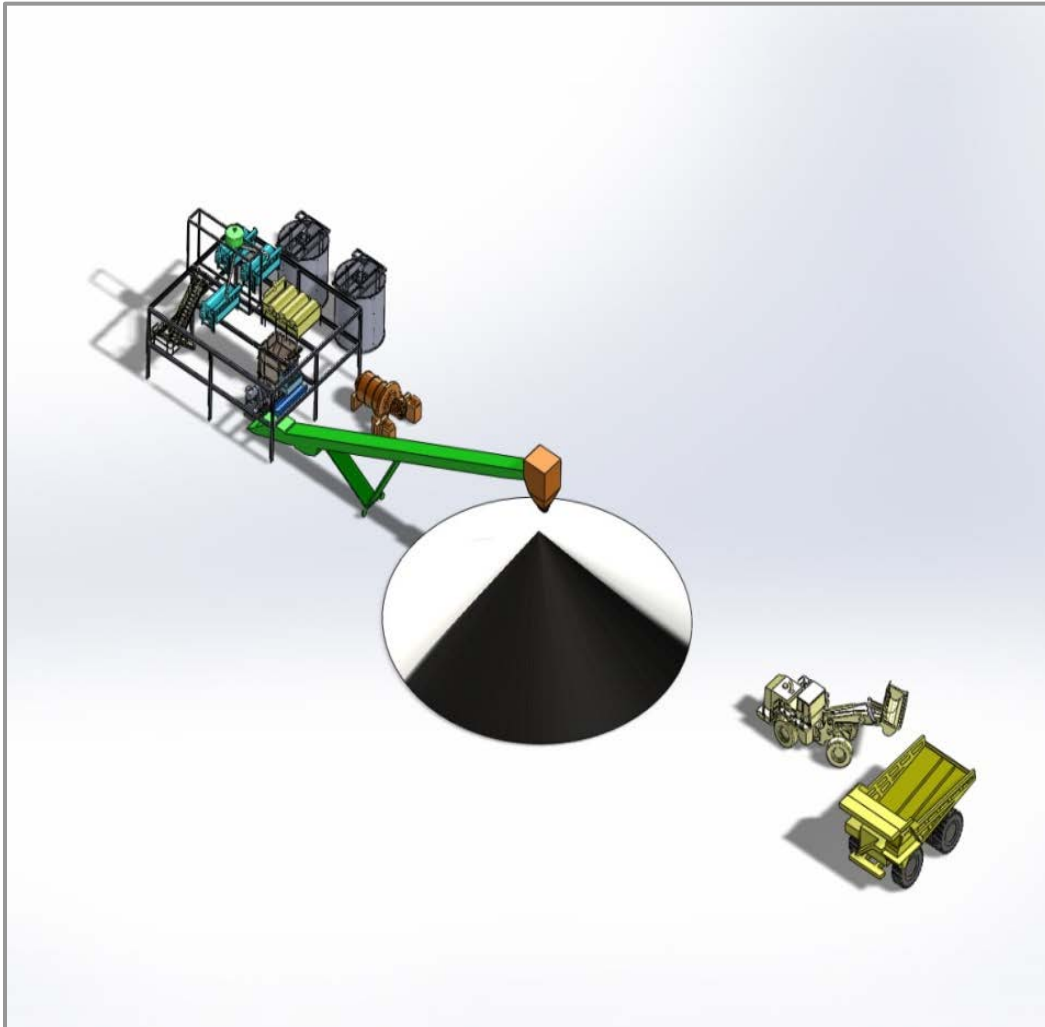


Figure 1. Magnetic Separation Plant

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**Competency Statement**

*The information in this report relating to Exploration Results and Mineral Resources is based on information compiled by Mr Robert Watkins who is a member of the Australasian Institute of Mining and Metallurgy and has sufficient exploration experience which is relevant to the various styles of mineralisation under consideration to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Watkins is a full time employee of Beadell Resources Ltd. Mr Watkins consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*