

ASX Announcement

23rd July 2014



GRYPHON
MINERALS LIMITED

Corporate Directory

Non-Executive Chairman
Mel Ashton

Managing Director
Stephen Parsons

Non-Executive Directors
Didier Murcia
Bruce McFadzean

Company Secretaries
Carl Travaglini
Candice Donnelly

Advancing the 3.6 Moz Banfora Gold Project, Burkina Faso¹

- low capital costs
- low operating costs
- high grade Heap Leach
- high margins

Funding:

- US\$34 million cash²
- US\$60 million debt³

On-track in CYQ2/2014:

- Mine permitting ✓
- Debt mandate ✓
- Feasibility study
- Early site works
- Exploration results

Contact Details

Principal & Registered Office
288 Churchill Avenue
SUBIACO WA 6008
T: +61 8 9287 4333
F: +61 8 9287 4334
E: admin@gryphonminerals.com.au

ASX CODE

GRY

www.gryphonminerals.com.au

Excellent Gold Recoveries from Final Heap Leach Testwork Banfora Gold Project, Burkina Faso

Highlights

- Final testwork indicates that field recoveries across all deposits at the Banfora Gold Project are expected to average **85% for oxide, 78% for transitional and 66% for primary.**
- Fast leach kinetics for the majority of the test samples with most of the recoverable gold extracted in 30 days.
- Crush sizes of 12.5 mm for oxide and transitional material, and 8mm for primary material.
- Satisfactory permeability and low slumping levels were achieved with low/moderate cement additions and cyanide consumptions.
- All testwork was undertaken under the supervision of Kappes Cassiday & Associates Australia (KCAA) at SGS Lakefield Oretest in Perth while all engineering process designs are being completed by Lycopodium, Perth.
- Results will be incorporated into the low cost start-up 2Mtpa Heap Leach Feasibility Study anticipated to be completed in the coming weeks.

Gryphon Minerals Limited (ASX:GRY) is pleased to announce final heap leach metallurgical testwork results and an update on the Feasibility Study currently in progress targeting an initial low cost start-up 2Mtpa heap leach processing facility at the Banfora Gold Project in Burkina Faso, West Africa.

Final results have now been received for oxide and primary metallurgical testwork for an additional 16 column leach tests and 46 IBRTs (intermittent bottle roll tests). Material has now been tested from all main deposit sources for expected leach recovery and reagent consumptions. These results will be incorporated into the Feasibility Study expected to be released this quarter 2014.

Gryphon Minerals Managing Director Stephen Parsons commented:

"The confirmation of the excellent amenability of our gold deposits at the Banfora Gold Project to conventional heap leach processing is an important step in the development schedule for the Project. The high gold recoveries along with the high grade nature of the deposits certainly makes Banfora a stand out compared to similar projects around the world.

With the recent granting of the mining licence and mandate letter for provision of debt funding, Gryphon has taken another significant step towards development of the Banfora Gold Project."



2Mtpa Heap Leach Feasibility Study Metallurgical Testwork, Banfora Gold Project

Key results:

- Exceptional column test gold recoveries from oxide material ranging from 80% to 96% with an average column extraction of 89% at the 12.5mm crush size.
- Fast leach kinetics for the majority of test samples with most of the recoverable gold extracted in 30 days.
- Satisfactory permeability and low slumping levels maintained with low/moderate cement additions and cyanide consumptions, with leach pad stacking heights of 8 metres for oxide and 10 metres for primary material.
- Nogbele deposit oxide column recoveries average 87% gold extraction using a 12.5mm crush.
- Samavogo deposit oxide column recovery of 87% gold extraction using a 12.5mm crush.
- Stinger deposit oxide column recovery of 91% gold extraction using a 15mm crush.
- Low to moderate cement and cyanide additions required at Nogbele and Samavogo deposits (3 - 9.5 kg/t and 0.3 kg/t NaCN).
- Moderate cement and cyanide additions required at the Stinger deposit (10.0 kg/t and 0.25 kg/t NaCN).
- Current process design studies indicates that 12.5mm crush can be achieved on oxide material with a minimal impact on CAPEX requirements and operating costs due to the friable nature of the oxide ore.

Results have been now been received from a further 16 column tests and 46 IBRTs conducted on oxide, transitional and primary material from all of the proposed mine sources. Samples were prepared from HQ3 diamond drill core collected from the Nogbele, Fourkoura, Stinger and Samavogo gold deposits. A total of 1,800 kg of oxide, transitional and primary material was shipped to Perth for laboratory testing by SGS Lakefield Orestest. All testwork and sample selection have been conducted under the supervision of heap leach experts Kappes, Cassiday and Associates Australia (KCAA) based in Perth.

The current testwork program has been designed to build on the previous column testwork program conducted on low grade oxide material from Nogbele which indicated recoveries averaging 78% obtained from a 25 mm crush size (refer ASX release 27/05/2013). The new results form the basis for advancing the previously released scoping study (refer ASX release 04/02/14)⁴ to Feasibility Study level.

JORC 2012 Compliance Statement

The optimisation studies are at Scoping Study level and therefore based on low-level technical and economic assessments, and are insufficient to support the estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised. In discussing reasonable prospects for eventual economic extraction in Clause 20, the Code requires an assessment (albeit preliminary) in respect of all matters likely to influence the prospect of economic extraction including the approximate mining parameters by the Competent Person. While a Scoping Study may provide the basis for that assessment, the Code does not require a Scoping Study to have been completed to report a Mineral Resource. Scoping Studies are commonly the first economic evaluation of a project undertaken and may be based on a combination of directly gathered project data together with assumptions borrowed from similar deposits or operations to the case envisaged. They are also commonly used internally by companies for comparative and planning purposes. Reporting the general results of a Scoping Study needs to be undertaken with care to ensure there is no implication that Ore Reserves have been established or that economic development is assured. In this regard it may be appropriate to indicate the Mineral Resource inputs to the Scoping Study and the processes applied, but it is not appropriate to report the diluted tonnes and grade as if they were Ore Reserves. While initial mining and processing cases may have been developed during a Scoping Study, it must not be used to allow an Ore Reserve to be developed.

Columns were set up with a 2 metre ore height and leached until gold extractions had tailed off and extracted gold calculated. Residue results are based upon a total of 16 fire assays taken at depth slices through the column residue. Additional size fraction analysis was conducted on all head and residue material to assess the size fraction associated with any un-leached gold. A single 4 metre column oxide sample was also constructed on composite material from Nogbele to assess variability in the deposits blend.

In addition a total of 46 IBRTs were undertaken which were designed to replicate field recoveries as an indicative test. Samples of 4-5 kg are leached in cyanide solution for a 10 day leach period with only intermittent agitation. This testwork was designed by Kappes Cassidy and Associates Australia to be used in conjunction to the column testwork.

These recent results have expanded the data set to cover all deposits at the Banfora Gold Project. Recoveries have largely supported the assumptions incorporated into the scoping study⁴ and now provide a basis for the Feasibility Study due for completion this quarter.

Recent Oxide Material Testwork

Samples for the oxide column leach tests were prepared to a P₁₀₀ of 12.5 mm for all samples with the exception of the Stinger deposit column which was prepared to a P₁₀₀ of 15 mm. Grades of the selected columns ranged from 0.9 g/t gold to 18.1 g/t gold.

The crush size was reduced to 12.5 mm for the current testwork, primarily to assist in the recovery of the higher grades expected in the stand alone heap leach option. Modelling of the process design completed under the supervision of Lycopodium has indicated that the reduction in crush size will have minimum impact on the Capital Cost requirements and operating costs due to friable nature of the oxide mineralisation.

The calculated column extractions and head grades are shown in Table 1 below:

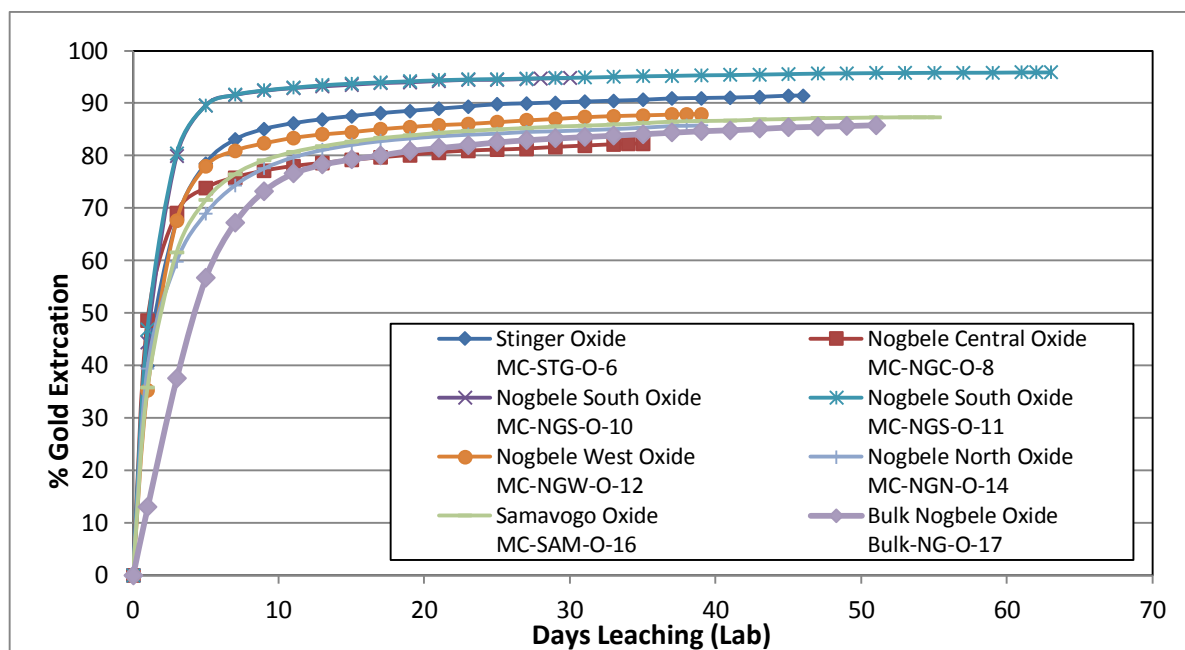
Table 1: Banfora Gold Project Oxide Column Results

Column Test Composite Oxide Sample	Crush Size (mm)	Leach Duration (days)	Residue Grade (Au g t ⁻¹)	Extracted Grade (Au g t ⁻¹)	Calc. Head (Au g t ⁻¹)	Calc. Head (Ag g t ⁻¹)	Au Extraction (%)
MC-STG-O-6 (Stinger)	15	46	0.11	1.21	1.33	2.0	91.4
MC-NGC-O-8 (Nogbele Central)	12.5	35	0.22	1.01	1.23	0.6	82.3
MC-NGS-O-10 (Nogbele South)	12.5	30	0.12	2.13	2.25	1.6	94.8
MC-NGS-O-11 (Nogbele South)	12.5	63	0.35	8.14	8.49	1.2	95.9
MC-NGW-O-12 (Nogbele West)	12.5	39	0.11	0.79	0.89	1.0	87.9
MC-NGN-O-14 (Nogbele North)	12.5	39	0.26	1.55	1.81	2.0	85.8
MC-NGN-O-15 (Nogbele North)*	12.5	83	3.78	14.4	18.2	9.3	79.2
MC-SAM-O-16 (Samavogo)	12.5	55	0.22	1.49	1.70	2.1	87.3
Bulk-NG-O-17 (composite 4m)	12.5	51	0.23	1.40	1.63	3.7	85.8

*Interim result obtained from 25% of residue, column continues to leach.



Figure 1: Oxide Column Extraction Curves 12.5 mm Crush Size



The column extractions testwork program was built on a further nine IBRTs conducted at crush sizes between 12.5 to 25mm which indicated the benefit of a finer crush size on predicted recoveries in the quartz vein hosted mineralisation.

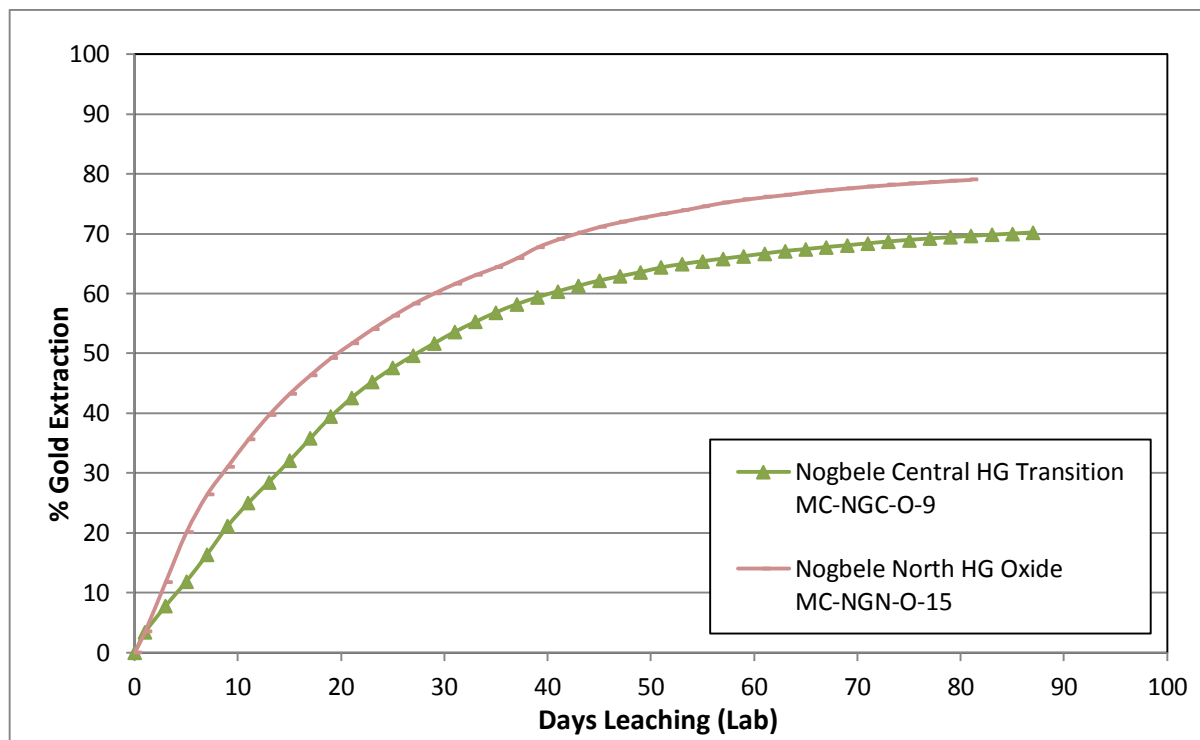
Excellent recoveries have also been confirmed from high grade material present in some of the quartz lodes at Nogbele. Column NGN-O-15 was set up to assess the leaching characteristics of very high grade oxide material. The column has an estimated head grade of 18.1 g/t gold and has exhibited a slower leach profile consistent with the dissolution of coarse gold. An interim recovery was assessed on a quarter of the residue material after 80 days of leaching indicating a recovery of 79.2% had been achieved. The column continues to operate and leach strongly.

A single column on Nogbele transition material, NGC-O-9, was also included in the testwork. Similar to NGN-O-15, an interim recovery was assessed indicating a head grade of 8.24 g/t and a recovery 70.3% after 89 days of leaching. The column has been re-established and it continues to leach strongly; final results are pending. Further transition samples across the deposits were tested by IBRT.

The leach characteristics of these columns provide important data on eventual field handling of the higher grade ores on the leach pad. Recovery curves from these coarse high grade gold testwork samples are shown below.



Figure 2: High Grade Coarse Gold Column Extraction Curves 12.5 mm Crush Size



Oxide Material Reagent Consumption

Agglomeration and percolation tests were conducted on the main composites to establish the cement additions required to generate suitable agglomerates for the column leaching at the 12.5 mm crush size. Results have confirmed previous data and indicated low slumping in column scale testwork through moderate cement addition with extractions achieved with low cyanide consumption.

Final permeability and pad stability tests overseen by Knight Piésold of Perth were received from the laboratory this month. Cement consumptions accommodating agglomeration and pad stability parameters were accordingly established for the various deposits. Cyanide (NaCN) consumption parameters have been recommended by KCAA for inclusion in the processing cost estimation and plant design. Reagent consumptions are summarized for the various ore bodies in Table 2.

Table 2: Reagent Consumption Parameters

Deposit	Material	NaCN (kg/t)	Cement (kg/t)
Nogbele North	Oxides	0.20	8.0
Nogbele Central	Oxides	0.20	8.0
Nogbele South	Oxides	0.20	9.5
Nogbele West	Oxides	0.20	9.5
Samavogo	Oxides	0.30	8.0
Stinger	Oxides	0.25	10.0
Nogbele high grade quartz lodes	Oxides	0.40	8.0
All Transition Ores	Transition	0.30	3.0
All Primary Ores	Primary	0.25	2.0

Primary Material Testwork

Primary ore columns were prepared with a P₁₀₀ of 8mm, with 26 additional IBRTs conducted on both P₁₀₀ 8 mm and P₁₀₀ 4.75 mm samples to assess the impact of crush size on extraction.

Grades for the primary material tested ranged from 1.54 g/t to 5.84 g/t gold, with three columns selected from Nogbele and a single column from the other deposits.

Results indicate:

- Good column recoveries achieved from primary material from the Nogbele Deposit with an average extraction of 68% from the three columns.
- Excellent column recoveries achieved from primary material at the Samavogo Deposit with an extraction of 73%.
- Moderate recovery achieved from primary material at the Fourkoura Deposit with a column extraction of 45%.
- Low recovery achieved from primary material at the Stinger deposit with a column extraction of 37% indicating the material is currently unsuitable for heap leach extraction. It is noted that Stinger primary material did not contribute to the in-pit resources used for the scoping study⁴.
- IBRTs indicate small improvement with reduction of crush size to 4.75 mm at Nogbele and Fourkoura, however primary ore plant design will be maintained at a more practical 8 mm crush size.

The Company view these primary testwork results as extremely encouraging with extractions from Nogbele and Samavogo comparing very favourably internationally to other projects processing primary material. Further work will be undertaken over the coming months to improve recoveries that may allow further zones of the sizable gold resource sitting below the current pit designs to become economic for Heap Leach processing.



Table 3: Primary Column Results

Comp.	Crush Size (mm)	Leach Duration (days)	Residue Grade (Au g t ⁻¹)	Extracted Grade (Au g t ⁻¹)	Calc. Head (Au g t ⁻¹)	Calc. Head (Ag g t ⁻¹)	Au Extraction (%)
MC-NGN-P-1 Nogbele North	8	105	1.65	4.18	5.84	6.1	71.5
MC-NGC-P-2 Nogbele Central	8	77	0.58	1.04	1.53	1.0	63.4
MC-NGS-P-3 Nogbele South	8	93	1.06	2.22	3.33	1.8	69.0
MC-SAM-P-4 Samavogo	8	93	1.28	3.38	4.85	7.8	72.7
MC-STG-P-5 Stinger	8	77	0.88	0.76	1.68	1.2	36.8
MC-FKR-P-7 Fourkoura	8	77	0.93	0.78	1.70	1.7	44.7

Figure 3: Primary Column Extraction Curves 8 mm Crush Size

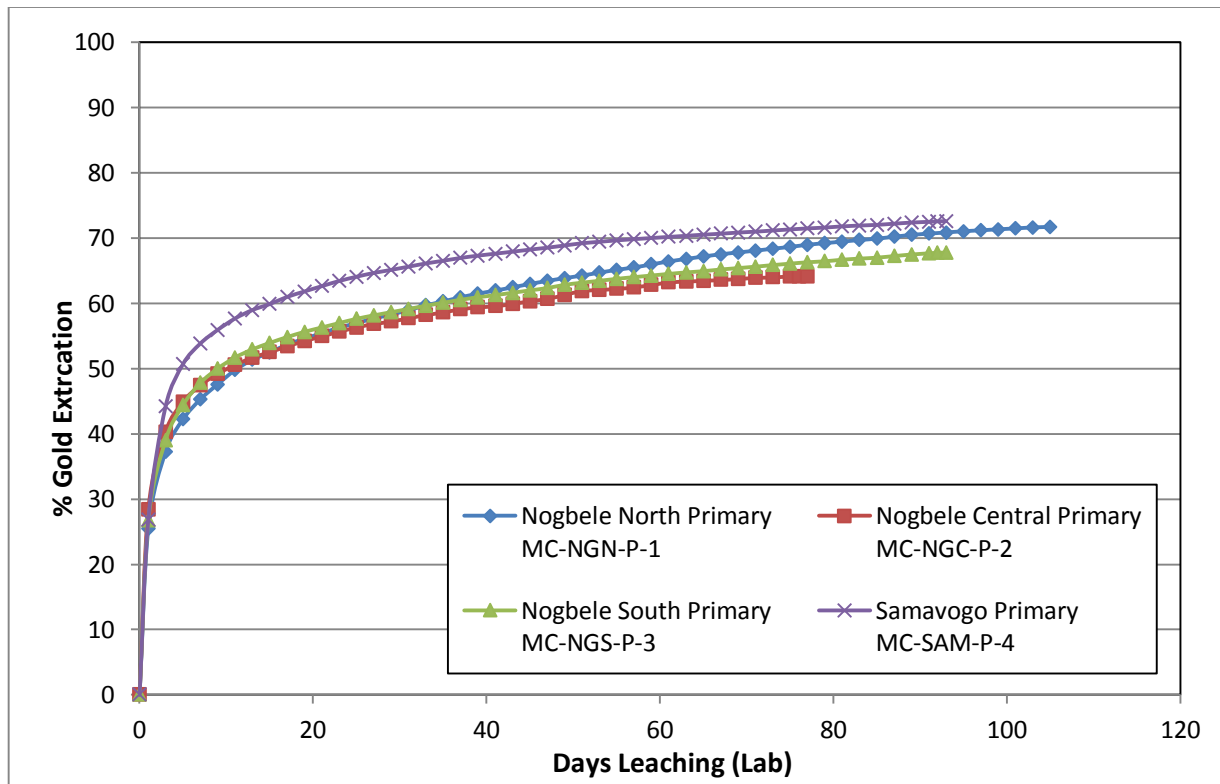
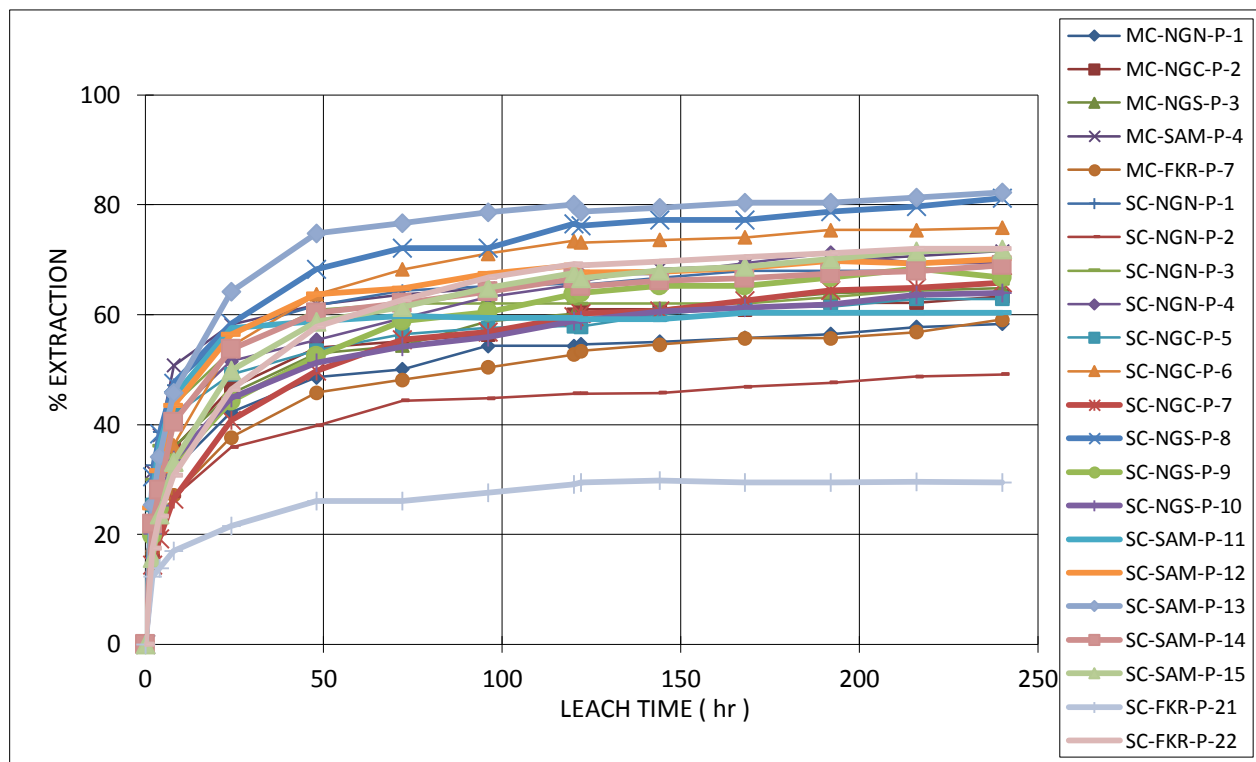




Figure 4: Primary IBRT Extraction Curves 4.75 mm Crush Size



Predicted Field Recoveries

Predicted field extractions anticipated by KCAA for use in the Feasibility Study are estimated from a combination of column test results and IBRT data. Column extraction test results are generally discounted 2-3% in the estimation of field recoveries. Estimated field recoveries average 85% across oxide material, 78% across transitional material and 66% for primary material.

Plant Design Update

The plant layout design being undertaken by Lycopodium is essentially finalised and detailed costing is underway.

The plant design proposes a two stage crushing circuit, which includes a primary jaw crusher and a secondary cone crusher. After crushing, the ore is agglomerated with the addition of cement, then discharged onto the conveying system and stacked onto the heap leach pad. Following stacking, the leach solution is applied to the pad and drains to the pregnant leach solution pond. The pregnant leach solution is then pumped to the Adsorption-Desorption Recovery plant, where the gold is recovered and gold doré is produced.

Plant design will produce a 12.5mm crush on oxide material with an 8mm crush for high grade oxide veins, transitional and primary ores at an annualised throughput rate of 2Mtpa for life of mine.

Heap leach pad heights were established by Knight Piésold following permeability and pad stability testwork in conjunction with KCAA. The testwork included sampling for simulation of agglomeration at various cement contents to determine optimum pad height without compromising permeability and percolation in the pads. Heap leach pad heights of 8 metres for oxide material and 10 metres for transition and primary materials have been recommended, with an ultimate maximum pad height of 50 metres.

About Gryphon Minerals

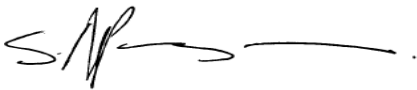
The Banfora Gold Project (GRY: 90%, Burkina Faso Government: 10%) is located in South-West Burkina Faso, West Africa in a major gold producing district, host to such world class gold deposits as Tongon (4.2 Million oz Au), Syama (5 Million oz Au mined & 6.5 Million oz Au in resources) and Morila (6.5 Million oz Au). Burkina Faso is a stable and progressive nation with over 25 years of strong democratic government and an advanced mining code - demonstrating the nation's desire for mining development.

The Company completed optimisation studies in February 2014⁴, based on a number of alternative development options that are appropriate for current gold market conditions. Initiatives for capital cost reduction were the main focus of the optimisation studies, in conjunction with examining project economics across a range of gold prices, plant throughputs and optimum process routes.

The Company has identified a preferred low-cost start-up two million tonne per annum⁴ heap leach operation that can generate strong returns in a lower gold price environment and is highly leveraged to any gold price increases.

A full Feasibility Study on the heap leach operation has commenced with the results expected in mid-2014. Detailed information on all aspects of Gryphons' projects can be found on the Company's comprehensive website www.gryphonminerals.com.au

Yours faithfully



Steve Parsons
Managing Director

Footnotes

- 1 Refer to how the Mineral Resource estimates were derived in Appendix 3 of the Company's ASX announcement dated 4 February 2014 ("Announcement"). Gryphon is not aware of any new information or data that materially affects the information included in the Announcement. The Mineral Resource estimates in relation to Stinger and Samavogo deposits have not been updated to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported in the ASX announcement dated 31 January 2013.

The information in the Announcement that relates to the Mineral Resources at the Stinger and Samavogo deposits is based on information compiled by Mr Dmitry Pertel, who is a member of the Australian Institute of Geoscientists. Mr Pertel has sufficient experience relevant to the styles of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person, as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Pertel is a full time employee of CSA Global Pty Ltd and has consented to the inclusion of the matters in this report based on his information in the form and context in which it appears. This information was prepared and first disclosed under JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.

- 2 As disclosed in the June 2014 quarterly and converted using an USD/AUD exchange rate of 0.94 (includes listed investments).
- 3 Availability of the Project Loan Facilities is subject to due diligence, credit approval, entering into documentation and satisfaction of conditions precedent.
- 4 ASX release 04/02/14. The optimisation studies are at Scoping Study level therefore based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

In discussing reasonable prospects for eventual economic extraction in Clause 20, the Code requires an assessment (albeit preliminary) in respect of all matters likely to influence the prospect of economic extraction including the approximate mining parameters by the Competent Person. While a Scoping Study may provide the basis for that assessment, the Code does not require a Scoping Study to have been completed to report a Mineral Resource.

Scoping Studies are commonly the first economic evaluation of a project undertaken and may be based on a combination of directly gathered project data together with assumptions borrowed from similar deposits or operations to the case envisaged. They are also commonly used internally by companies for comparative and planning purposes. Reporting the general results of a Scoping Study needs to be undertaken with care to ensure there is no implication that Ore Reserves have been established or that economic development is assured. In this regard it may be appropriate to indicate the Mineral Resource inputs to the Scoping Study and the processes applied, but it is not appropriate to report the diluted tonnes and grade as if they were Ore Reserves.

While initial mining and processing cases may have been developed during a Scoping Study, it must not be used to allow an Ore Reserve to be developed.

The information in this release that relates to metallurgical testwork and other scientific and technical information is based on information compiled by or under the direction of Randall Pyper, General Manager for Kappes, Cassidy & Associates Australia Pty Ltd, who is a Fellow of The Australasian Institute of Mining and Metallurgy and a consultant to Gryphon Minerals Limited. Mr Pyper has sufficient experience which is relevant to the styles of mineralisation and types of deposits under consideration, and to the activity which he is undertaking, to qualify as a Competent Person as defined in the JORC Code. Mr Pyper consents to and has approved the inclusion in this release of the matters based on this information in the form and context in which it appears, including sampling, analytical and test data underlying the results.