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## ENCOURAGING PRELIMINARY METALLURGICAL TESTWORK FOR OXIDE HEAP LEACHING AT THE SOUTH HOUNDÉ PROJECT

VANCOUVER, CANADA. Sarama Resources Ltd. (“Sarama” or the “Company”) is pleased to announce that preliminary metallurgical testing at its flagship South Houndé Project in south-west Burkina Faso has returned encouraging results, indicating potential for heap leach processing of oxide mineralisation. Sarama is conducting the testwork to establish a range of alternatives for the development of the South Houndé Project, with the heap leach concept presenting an attractive low-cost alternative.

### Highlights

- Average gold extraction of 90.2% for oxide composite sample in intermittent bottle roll testwork<sup>1</sup>
- Variability testwork on high-grade mineralisation samples returned an average extraction of 93.0%. Variability testwork on sediment-hosted mineralisation returned an average extraction of 75.4%. Both samples had low to moderate reagent consumptions<sup>1</sup>
- Visual observations suggest that oxide material readily forms a stable feed when agglomerated with cement
- Agglomeration testing indicates moderate cement requirements with 6-10kg/tonne addition rate yielding acceptable pellet strength and column slump levels<sup>2</sup>
- Percolation testing indicates that high solution flow rates through the agglomerated product can be achieved
- Column leach testing has commenced on composite sample using agglomeration with cement addition of 10kg/tonne
- Oxide component of the Inferred Mineral Resource at South Houndé Project contains 298 koz of gold<sup>3</sup>

1. Samples control crushed to -25mm and -8mm screen sizes, prior to leaching by sodium-cyanide solution in intermittent bottle roll test over a 10 day period
2. <10% column height slump adopted as acceptable limit for 80mm diameter column with ~400mm charge height
3. 6.82 Mt @ 1.4 g/t Au for 298 koz reported above 0.4 g/t Au

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## **Preliminary Metallurgical Testwork for Oxide Heap Leaching**

A preliminary metallurgical testwork program has been commenced by ALS Metallurgy Pty Ltd under the supervision of Kappes, Cassiday & Associates Australia Pty Ltd (“KCAA”) to determine the amenability of oxide mineralisation to processing by heap leaching. The testwork is regarded as preliminary and as such, parameters and flowsheets are un-optimised. Notes outlining the testwork approach and detailed results are presented in Appendix A.

A composite oxide sample, weighing approximately 240kg, was generated from weathered quartz-feldspar-porphyry hosted mineralisation in 6 individual diamond drill half-core samples sourced from within the mineral resource. The constituent holes were selected so as to provide reasonable representativity across the MM Prospect which hosts the majority of the mineral resources at the South Houndé Project.

In addition to this composite sample, two variability samples were sourced to investigate, at a high level, the leaching performance of high-grade gold mineralisation and sediment-hosted gold mineralisation in intermittent bottle roll (“IBR”) testing.

### **Intermittent Bottle Roll Leach Testing**

IBR testing, under which the samples are gently rolled in a sodium cyanide solution for duration of 1 minute per hour for a total test time of 10 days, is a first-pass test designed to provide an insight into the potential leach performance of a coarse crushed feed. KCAA’s experience with other testwork programs suggests that IBR testing can provide a good indication of potential leaching performance in traditional heap leach column tests.

The gold extractions and low reagent consumptions achieved in the IBR testing indicate that the mineralisation is potentially amenable to heap leaching (refer Table 1). The generally high rates of extraction, while influenced by the friable nature of the samples and the resulting small particle size, are encouraging, and on this basis, the Company has commissioned a column leach test on the -25mm composite sample.

The IBR tests on the variability samples indicate that high extractions can be achieved for both the high-grade mineralisation and the mineralisation hosted in sedimentary lithologies, the latter of which constitute a small proportion of the South Houndé Project’s mineral resource.

**Table 1 - Gold Extraction Results – Intermittent Bottle Roll Test**

<b>Sample Description</b>	<b>Leach Residue Particle Size</b>	<b>Calculated Head Grade</b>	<b>Gold Extraction @ 240 Hours</b>	<b>Cyanide Consumption</b>	<b>Lime Addition</b>
	<b>% Pass 0.5mm</b>	<b>g/t Au</b>	<b>%</b>	<b>kg/tonne</b>	<b>kg/tonne</b>
Oxide Composite -25mm	94%	1.94	89.2	0.56	1.00
Oxide Composite -8mm	94%	1.90	91.2	0.51	1.11
<b>Average</b>		<b>1.92</b>	<b>90.2</b>	<b>0.54</b>	<b>1.05</b>
High Grade Variability Sample -25mm	93%	7.53	93.5	0.62	0.64
High Grade Variability Sample -8mm	93%	7.79	92.5	0.56	0.77
<b>Average</b>		<b>7.66</b>	<b>93.0</b>	<b>0.59</b>	<b>0.70</b>
Sediment Variability Sample -25mm	60%	3.01	77.7	0.46	0.31
Sediment Variability Sample -8mm	64%	2.69	73.1	0.66	0.27
<b>Average</b>		<b>2.85</b>	<b>75.4</b>	<b>0.56</b>	<b>0.29</b>

### ***Agglomeration and Percolation Testing***

As is common with heap leaching of oxide material, the fine and friable nature of the oxide composite sample necessitated agglomeration with cement to provide a competent heap leach feed. A series of tests was conducted on the -25mm sample at cement dosage rates of 6kg/tonne feed, 12kg/tonne feed and 18kg/tonne feed to assess ease of agglomeration, particle stability and percolation characteristics in a column of approximately 400mm height.

The tests indicated that, at all 3 cement dosage rates, the composite sample was able to form an agglomerated product that was visually acceptable. Agglomerate stability also met minimum performance criteria with all 3 tests having less than 10% height slump from initial placement after the introduction of fluids and tapping to induce settlement. This result is encouraging and indicates that low to moderate cement additions would be required.

Percolation tests were conducted for each cement dosage rate by measuring water flow through the column charged with agglomerated product. The ability of a stacked heap leach product to maintain stability and allow the leach solution to flow freely and be well distributed throughout the heap is a key determinant in the effective extraction of gold. The composite sample performed very well with high flow rates being achieved at all 3 cement doses.

Overall, these results are encouraging and indicate that low to moderate cement additions would be required. Based on the initial results from the agglomeration and percolation testing, Sarama has moved to full column (200mm diameter) leach testing of the -25mm oxide composite sample using agglomeration with a cement dosage of 10kg/tonne feed.

### ***Metallurgical Testwork Program for Fresh Mineralisation***

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Following the completion of the preliminary metallurgical testwork program on the fresh mineralisation at MM and MC Prospects (refer news release September 16, 2013), Sarama has commenced a follow-up testwork program to further investigate the amenability of the fresh mineralisation to treatment with the BIOX<sup>®</sup> and Albion Process<sup>™</sup> methods.

The previous testwork demonstrated high gold leach extractions of 89.9% for the fresh mineralisation when subjected to flotation and oxidation prior to cyanidation. The oxidation of the concentrate, achieved by roasting, was the key determinant in the flowsheet to realize acceptable levels of gold extraction. Sarama believes similar levels of oxidation could potentially be achieved using the BIOX<sup>®</sup> and Albion Process<sup>™</sup> methods, whilst potentially realizing cost and environmental benefits compared to the roasting process.

A 495kg composite sample of fresh mineralisation, with a head grade of 2.14g/t Au, has been sourced from the MM, MC and Phantom Prospects within the mineral resource at the South Houndé Project. The composite sample is undergoing sulphide flotation to produce a pyrite-dominant flotation concentrate which will then be subjected to oxidation testwork at specialized facilities in Johannesburg (for the BIOX<sup>®</sup> process) and Brisbane (for the Albion Process<sup>™</sup>).

The oxidation testwork is designed as an 'orientation' or 'batch' scale and will test approximately 7-10kg of concentrate for each method. Key metrics obtained by the testwork programs will include degree of sulphide oxidation, reagent consumptions, energy requirements and gold extraction.

BIOX<sup>®</sup> and the Albion Process<sup>™</sup> are both commercially viable treatment methods for sulphide-hosted gold mineralisation, with the BIOX<sup>®</sup> method being used to produce approximately 1.5Moz Au per annum in 11 operations worldwide. Contingent upon successful test results, Sarama believes these processes could be applied to an industrial gold processing operation at the South Houndé Project.

As part of this program, flotation optimisation testwork was conducted to investigate the potential to improve the mass pull and/or gold recovery to concentrate characteristics observed in the original 2013 testwork program (bulk

flotation test yielded 6.1% mass pull and 93.8% gold recovery to concentrate – refer news release September 16, 2013). A series of scout flotation demonstrate that the mineralisation floats very easily, achieving a +85% gold recovery to concentrate in the first rougher flotation cell, subject to the specific flowsheet used. The testwork also shows that the concentrate is amenable to cleaning, reducing the mass pull to final concentrate to 4.2% with a corresponding gold recovery to concentrate of 88.9% at a sulphur content of 26.3%. Testwork details are listed in Appendix B.

Whilst the South Houndé Project is at a preliminary stage, this optimisation work further demonstrates that the mineralisation responds well to flotation and that the concentrate as a feedstock for downstream oxidative processing can be tailored to suit a range of specifications and/or operating constraints.

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Sarama's President and CEO, Andrew Dinning commented:

*"We see these early heap leach test results as encouraging and look forward to the completion of the column testing. Initial indications are that cement consumption will be moderate and a stable agglomerated product will be readily achieved, boding well for a simple and cost effective heap leach alternative to treat oxide mineralisation at the South Houndé Project.*

*Our testwork on the fresh mineralisation is ongoing and we are confident that the BIOX® and the Albion Process™ methods will offer additional viable alternatives for the treatment of this type of mineralisation.*

*Sarama's exploration efforts at the South Houndé Project are continuing with a bias towards grade and free-milling material and we are particularly keen to add to the 298koz<sup>1</sup> of oxide material in the inferred mineral resource."*

1. 6.82 Mt @ 1.4 g/t Au for 298koz Au (at a 0.4 g/t Au cut-off)

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## **ABOUT SARAMA RESOURCES LTD**

Sarama Resources Ltd (TSX-V: SWA) is a West African focused gold explorer with substantial landholdings in Burkina Faso, Liberia and Mali.

Sarama's flagship properties are situated within the Company's South Houndé Project area in south-west Burkina Faso. Located within the prolific Houndé greenstone belt, Sarama's exploration programs have built on significant early success to deliver a maiden Inferred Mineral Resource estimate of 1.5 Moz gold<sup>2</sup>. Outside of Burkina Faso, Sarama is focused on consolidating a number of under-explored landholdings in other emerging and established mining jurisdictions.

Incorporated in 2010, the Company's Board and management team have a proven track record in Africa and a strong history in the discovery and development of large-scale gold deposits. Sarama is well positioned to build on its current success with a strong financial position and a sound exploration strategy across its property portfolio.

2. 29.13 Mt @ 1.6 g/t Au (at a 0.8 g/t Au cut-off)

## **CAUTION REGARDING FORWARD LOOKING STATEMENTS**

*Information in this news release that is not a statement of historical fact constitutes forward-looking information. Such forward-looking information includes statements regarding the Company's future exploration program and the Mineral Resource estimate. Actual results, performance or achievements of the Company may vary from the results suggested by such forward-looking statements due to known and unknown risks, uncertainties and other factors. Such factors include, among others, that the business of exploration for gold and other precious minerals involves a high degree of risk and is highly speculative in nature; Mineral Resources are not Mineral Reserves, they do not have demonstrated economic viability, and there is no certainty that they can be upgraded to Mineral Reserves through continued exploration; few properties that are explored are ultimately developed into producing mines; geological factors; the actual results of current and future exploration; changes in project parameters as plans continue to be evaluated, as well as those factors disclosed in the Company's publicly filed documents.*

*There can be no assurance that any mineralisation that is discovered will be proven to be economic, or that future required regulatory licensing or approvals will be obtained. However, the Company believes that the assumptions and expectations reflected in the forward-looking information are reasonable. Assumptions have been made regarding, among other things, the Company's ability to carry on its exploration activities, the sufficiency of funding, the timely receipt of required approvals, the price of gold and other precious metals, that the Company will not be affected by adverse political events, the ability of the Company to operate in a safe, efficient and effective manner and the ability of the Company to obtain further financing as and when required and on reasonable terms. Readers should not place undue reliance on forward-looking information.*

*Sarama does not undertake to update any forward-looking information, except as required by applicable laws.*

## **QUALIFIED PERSON'S STATEMENT**

*Scientific or technical information in this news release that relates to metallurgical testwork and mineral processing for oxide mineralisation is based on information compiled or approved by Randall Pyper. Randall Pyper is an employee of Kappes, Cassidy & Associates Australia Pty Ltd and is considered to be independent of Sarama Resources Ltd. Randall Pyper has verified the data underlying the information in this news release pertaining to the metallurgical testwork completed on the Company's behalf. The verification was conducted by Randall Pyper through a review of relevant lab results provided directly by the engaged laboratory. Randall Pyper is a Fellow in good standing of the Australasian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the commodity, style of mineralisation under consideration and activity which he is undertaking to qualify as a Qualified Person under National Instrument 43-101. Randall Pyper consents to the inclusion in this report of the information, in the form and context in which it appears.*

*Scientific or technical information in this news release that relates to metallurgical testwork and mineral processing for fresh mineralisation is based on information compiled or approved by John Fodor. John Fodor is an employee of Orway Mineral Consultants Pty Ltd and is considered to be independent of Sarama Resources Ltd. John Fodor has verified the data underlying the information in this news release pertaining to the metallurgical testwork completed on the Company's behalf. The verification was conducted by John Fodor through a review of relevant lab results provided directly by the engaged laboratory. John Fodor is a Fellow in good standing of the Australasian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the commodity, style of mineralisation under consideration and activity which he is undertaking to qualify as a Qualified Person under National Instrument 43-101. John Fodor consents to the inclusion in this report of the information, in the form and context in which it appears.*

*Scientific or technical information in this news release that relates to the preparation of the Company's mineral resource estimate is based on information compiled or approved by Adrian Shepherd. Adrian Shepherd is an employee of Cube Consulting Pty Ltd and is considered to be independent of Sarama Resources Ltd. Adrian Shepherd is a chartered professional member in good standing of the Australasian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the commodity, style of mineralisation under consideration and activity which he is undertaking to qualify as a Qualified Person under National Instrument 43-101. Adrian Shepherd consents to the inclusion in this report of the information, in the form and context in which it appears.*

## APPENDIX A – PRELIMINARY HEAP LEACH METALLURGICAL TESTWORK

### Notes

1. The metallurgical testwork program was undertaken by ALS Metallurgy Pty Ltd (Perth) under the supervision of Kappes, Cassiday & Associates Australia Pty Ltd, a minerals industry consultancy based in Perth, Western Australia, which is independent of Sarama.
2. Sample selection ensured representivity in terms of gold grade, mineralisation style, weathering type and spatial distribution. In total, 6 individual samples, weighing a total of approximately 240kg, were collected from the MM Prospect to form the oxide composite sample.
3. Two variability samples, one high-grade from the MM Prospect and one comprising sediment-hosted gold mineralisation from the MC Prospect were collected in order to examine the effect of the above-mentioned factors on the overall metallurgical extraction.
4. All samples were sourced from diamond drill half-core which had been stored in purpose built core trays on-site in Burkina Faso.
5. All samples were homogenised and two sub-samples for each test were produced by control crushing to -25mm and -8mm. Full head assays were obtained for each sample stream.
6. The samples were subjected to intermittent bottle roll cyanidation tests for a total duration of 10 days. During this 10 day period, the bottles were gently rolled for a duration of 1 minute every hour and left to settle for the remainder of the hourly period. The tests were performed at a pulp density of 40% solids (w/w), pH of approximately 10.5 and an initial NaCN concentration of 0.10% (w/v) and being kept above 0.05% (w/v). The leach solution was replaced after 120 hours and intermittent Au extraction to solution sampling occurred pre-determined intervals throughout the test. A size-by-size analysis for Au was conducted on the residue.
7. Agglomeration testing was performed on the -25mm oxide composite sample using cement dosage rates of 6kg/tonne feed, 12kg/tonne feed and 18kg/tonne feed. Agglomeration was performed in a rolling drum with water added according to visual observations. After agglomeration, the product cured for 24 hours prior to other testwork being performed.
8. Slump tests were performed in an 80mm diameter, approximately 400mm high, clear plastic column for each cement dosage rate. Starting heights were noted after the agglomerated product was placed in the column and then slumped heights were noted after water had been added to the column and also after the column had been tapped to induce settlement.
9. Percolation tests were performed in an 80mm diameter, approximately 400mm high, clear plastic column for each cement dosage rate. Water was introduced into the loaded column to a starting level. Water drainage through the column was measured over a time period whilst keeping the water head height constant.

## APPENDIX B – FRESH MINERALISATION SCOUT FLOTATION TESTWORK

### Notes

1. The metallurgical testwork program was undertaken by ALS Metallurgy Pty Ltd (Perth) under the supervision of Orway Mineral Consultants Pty Ltd, a minerals industry consultancy based in Perth, Western Australia, which is independent of Sarama.
2. Sample selection ensured representivity in terms of gold grade, mineralisation style, weathering type and spatial distribution. In total, 41 individual samples, weighing a total of approximately 495kg, were collected from the MM, MC and Phantom Prospects to form the fresh composite sample.
3. All samples were sourced from diamond drill quarter-core which had been stored in purpose built core trays on-site in Burkina Faso.
4. All samples were homogenised and ground to a P80 size of 150µm for flotation testwork. Full head assays were obtained.
5. Scout flotation testwork focussed on the determining the amenability of the concentrate to cleaning was undertaken using a 4-stage rougher flotation circuit for which the collected concentrate reported to a 3-stage cleaner flotation circuit. The tails from the final rougher and cleaner stages were discarded.
6. Residence times for the rougher flotation stages were 2 minutes for the first 3 stges and 4 minutes on the final stage. Residence times for the cleaner flotation circuit were 1, 2 and 3 minutes for the first, second and third stages respectively.
7. Rougher feed was conditioned with 25g/t  $\text{CuSO}_4$  and 25g/t PAX collector was added. The slurry was further conditioned with 10g/t PAX during rougher stages 2 and 3, and 5g/t PAX during rougher stage 4. H27 frothing drops were added in the pre-conditioning stage and during rougher stage 2.
8. Product streams for all rougher and cleaner stages were weighed and assayed for gold and sulphur.