

African Eagle Resources PLC : Dutwa Metallurgical Testwork Update

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African Eagle - Dutwa Metallurgical Testwork Update

Strongly Positive Metallurgical Test Work Results

12 September 2012: African Eagle Resources plc ("African Eagle" or the "Company") (AIM: AFE; AltX: AEA) is pleased to announce strongly positive metallurgical test work results for its flagship Dutwa Nickel Project (the "Project") in Tanzania, which offer a high potential for improvements to both the Project's capital cost and operating costs.

Following a significant and targeted laboratory metallurgical test campaign on the Wamangola Ferruginous Siliceous ("FeSi") ores, the results demonstrate that the FeSi ore is strongly amenable to beneficiation prior to processing and that the beneficiated ore has improved leach characteristics when compared to the run-of-mine ("RoM") ore. The results exceed the promise identified in the 2011 mineralogical studies, conducted by the Natural History Museum (the "NHM"), while also characterising the significantly improved leach performance of the beneficiated ores, an outcome that is unexpected.

As a result, beneficiation offers the potential to significantly reduce both the operating and capital costs of the Project for the equivalent metal output.

Test work highlights for the Wamangola FeSi ore:

- * Simple ore beneficiation through low energy scrubbing and water screening results in significant mass rejection of low grade ore material, minimising the quantity of plant feed necessary to achieve the Project's targeted production output;
- * A significant upgrade is witnessed in ore head grade with up to a 2 times nickel ("Ni") grade improvement from around 1% to around 2%;
- * Leach characteristics of the beneficiated ore are superior to the RoM ore with:
 - * reduced acid consumption;
 - * shorter leach times; and
 - * reduced residual acid concentrations minimising neutralisation requirements;
- * Strong potential to reduce the throughput capacity of the process plant to achieve the equivalent metal output; and
- * Strong potential for a reduction in reagent consumption required to secure optimum metal output.

The test work indicates that between one half and two thirds of the FeSi mined RoM ore will be rejected from the beneficiation process and that the nickel grade of this rejected material will be below economic levels. FeSi ore comprises approximately 70% of the total resource of the Project. Test work is already underway to examine the potential to also beneficiate the Transition ore which comprises most of the rest of the resource.

Strong potential exists to double the Ni grade of the FeSi ore that is fed to the plant from around 1% to 2%. Furthermore, the test work also indicates that the leach response of the beneficiated FeSi ore, compared to the RoM ore, has improved characteristics in terms of a reduction in acid consumption, reduction in leach residence time and a reduction in the quantity of limestone required for neutralisation with the potential consequence of a reduction in operating costs and infrastructure requirements.

Commenting on the announcement, African Eagle's CEO, Trevor Moss said "We are

very excited about these metallurgical results which exceed our expectations in all aspects. They confirm the unusual and positive nature of the Dutwa mineralisation and demonstrate both the necessity and benefits of doing extensive and detailed metallurgical test work at this stage of the feasibility study.

The potential of beneficiating the FeSi ore was highlighted in the NHM report but these results both exceed our expectations and extend them to highlight positive leach performance that was not previously identified. Beneficiation prior to processing on a commercial scale will significantly reduce the amount of ore we need to process through the hydrometallurgical plant by greater than 50%, whilst almost doubling the nickel head grade with the potential for this to approach 2% for a significant period of the life of the operation. The improved leach behaviour of the beneficiated ore results in a smaller plant, which requires less acid and reagents while maintaining metal output. This has the potential to significantly improve the overall Project economics by reducing both the capital expenditure and the operating costs.

In order to fully capitalise on this strongly positive data we need to expand our metallurgical test programme through additional testing and to fully incorporate these results to the pit optimisation and mine scheduling and into the process model and flowsheet to ensure the pilot plant is configured appropriately. Therefore, we have decided the most prudent step is to adjust the scheduling of the pilot plant campaign and to optimise our available funds. We need to be confident that the pilot plant is properly configured and representative of the commercial scale plant we will build ahead of embarking on this significant programme. The potential capital cost and operating cost savings on the Project are substantial."

Next Steps

Further bench-scale test work has commenced to confirm the leach variability of the beneficiated FeSi material and to evaluate the Project's transition ores. The Company expects this to be concluded around calendar year end.

Concurrently, the Company is sending the last shipment of the already drilled bulk sample to Perth WA for use in the pilot testing. The pilot plant test work will be conducted once the additional bench-scale test work nears completion and is now expected to commence in Q1 2013.

Further, the Company is performing an in-depth review and detailed analysis of transport infrastructure with a particular focus on rail systems in Tanzania, and elsewhere within the East African Community, and will integrate the full suite of transport and logistics data into the BFS which is now scheduled for completion during H2 2013.

The Company's previous scoping study assumed that road haulage would be used for the transportation of reagents and product. The availability of a viable rail system would significantly improve transport costs.

Summary Details of Beneficiation Test Results

Batch test work on a selected RoM bulk ore sample from the Wamangola deposit was undertaken at ALS Ammtec laboratory in Western Australia to assess the amenability of the sample to upgrading (beneficiation) by the physical process of scrubbing and wet screening.

The test sample (~0.8 tonnes) comprised composite samples of FeSi ore created from nine drill holes in accordance with the proposed mining schedule. The diamond drill hole locations were themselves chosen to be spatially representative of the planned pit shells. The tests also examined the effect of scrubber power input on the efficiency of scrubbing i.e. nickel recovery.

Following analysis of detailed test results, a cut size for screening of 3.35mm was selected as appropriate. Mass and metal recoveries obtained from beneficiation by scrubbing and screening for samples that were tested, for two power inputs (2 kWh/t and 4 kWh/t) are shown in Table 1:

Table 1: Beneficiation Response of Wamangola Ferruginous Siliceous FeSi Ore

Power	% Mass	% Nickel	Feed Head	Rejects	Beneficiated	Input	Recovery	Recovery	Grade (%)	Grade (%)	Head Grade (%)
		Ni)	Ni)								
2 kWh/t	36	74	0.97	0.40	1.96						
4 kWh/t	39	77	0.98	0.37	1.95						

The beneficiation results on the Wamangola FeSi composite ore sample are very encouraging with around 61% to 64% of the mass being rejected at a grade of less than 0.5% nickel for the selected power inputs, with an upgrade factor of approximately two being achieved. The head grade of the resultant beneficiation product was 1.95% nickel versus a head grade of 0.98% nickel in the RoM ore. Nickel recovery into the beneficiated product was demonstrated to be high, ranging between 74% and 77%. Increasing the power input slightly from 2 to 4kWh/t, which corresponds to an increase in scrubber residence time, improved the nickel recovery in this step by a small but significant margin of approximately 3%.

Observations confirmed that potential problems that can occur during scrubbing of nickel laterite ores, such as formation of viscous slurries or clay balls, are unlikely to be an issue for the FeSi ore from Wamangola due to the type and proportions of clay inherent in the Dutwa deposit.

African Eagle is now conducting further work to confirm the beneficiation upgrade response of FeSi ores through a program of variability test work. The potential to beneficiate portions of the transition ores is also being examined in order to unlock greater value from the Dutwa resource.

Atmospheric Leach Test Results on Beneficiation FeSi Product

Bench-scale atmospheric agitated tank leaching tests with concentrated sulphuric acid at approximately 95(o)C to 100(o)C were also conducted at the ALS Ammtec laboratory to evaluate the leach performance of the beneficiated product. Leach times of up to 12 hours were investigated and the results were very positive.

Nickel extractions, acid additions and calculated acid requirements (kg acid/kg nickel) for leaching are shown in Table 2. This also shows results for RoM FeSi Ore (i.e. ore that has not been beneficiated).

Table 2: Metal Recoveries (and Sulphuric Acid Requirements) for Atmospheric Tank Leaching of Run-of-Mine and Beneficiated Wamangola FeSi Ores*

Test No.	FeSi	Head Grade	% Ni	Acid Addition	Acid Addition	Ore Type	(% Ni)	Recovery	kg/t Leach Feed	kg acid/kg Ni
HY385	Whole Ore	0.98	78	350	45.8					
HY449	Whole Ore	1.00	83	401	49.4					
HY477	Whole Ore	0.90	85	550	65.7					
HY1319	Beneficiated	2.05	62	339	26.6					
HY1321	Beneficiated	2.03	81	515	31.2					
HY1322	Beneficiated	2.07	82	515	30.0					
HY1327	Beneficiated	2.00	95	645	34.7					
HY1328	Beneficiated	2.03	92	643	34.0					

*12 hours leaching at 95(o)C

The significant economic advantages of beneficiating RoM FeSi ore are clearly

demonstrated by the test results in Table 2. The sulphuric acid requirement in terms of kg acid/kg nickel recovered is reduced considerably, by around 50%, due to the higher nickel content of the leach feed for beneficiated ore versus whole ore, whilst nickel recoveries remain comparable or are increased.

The leaching of nickel from beneficiated ores, with an acid addition of greater than 500 kg acid/t leach feed, was also shown to be extremely rapid with recoveries of greater than 80% being attained after only 8 hours at 515 kg acid/t leach feed, and in excess of 90% with 645 kg acid/t leach feed (see Tables 3 and 4, respectively), compared to the previous test work which showed whole ore leaching required a minimum of 12 hours and up to 24 hours to obtain Nickel recoveries of between 80 and 90%.

Table 3: Metal Recoveries from Beneficiated Wamangola FeSi Ore obtained by Atmospheric Leaching with Acid Addition of 515 kg H₂SO₄ /t Beneficiation Product (Leach Feed)

Time (hrs.)	% Ni Recovery	% Mg Recovery	% Fe Recovery	% Al Recovery
4	75.5	84.2	40.7	28.5
8	79.4	88.1	49.9	37.0
12	80.9	89.6	53.2	40.2

Table 4: Metal Recoveries from Beneficiated Wamangola FeSi Ore obtained by Atmospheric Leaching with Acid Addition of 645 kg H₂SO₄ /t Beneficiation Product (Leach Feed)

Time (hrs.)	% Ni Recovery	% Mg Recovery	% Fe Recovery	% Al Recovery
8	94.3	96.0	84.5	75.6
10	94.7	96.6	85.4	79.2
12	95.4	96.8	86.9	81.3

The leaching behaviour of beneficiated FeSi ore is generally superior to that of RoM FeSi ore, with nickel dissolution following that of magnesium, with iron and aluminium also being extensively leached. The majority of the nickel in the beneficiated product is considered to be associated with Mg-containing clay minerals and to a lesser extent with nickel-bearing goethite. This form of nickel is considered to be relatively faster leaching.

Technical terms

A glossary of technical terms used by African Eagle in this announcement and other published material may be found at <http://africaneagle.co.uk/dutwa-glossary.asp>.

Qualified Person

Information in this report relating to metallurgical test results is based on data reviewed by Chad Czerny PhD, Project Manager - Metallurgy for African Eagle Resources, who is a Member of the Australasian Institute of Mining and Metallurgy, has more than 20 years' relevant experience in the mining and metallurgical industry, and is a Qualified Person under AIM guidelines. Dr Czerny consents to the inclusion of the information in the form and context in which it appears.

For further information, please visit www.africaneagle.co.uk or contact:

African Eagle Resources plc

Trevor Moss, CEO
Alex Buck
+44 20 7248 6059

Canaccord Genuity Limited (NOMAD and Joint Broker)
Rob Collins or Andrew Chubb
+ 44 20 7523 8000

Ocean Equities Limited (Joint Broker)
Guy Wilkes
+44 20 7786 4370

Russell & Associates, Johannesburg
Charmane Russell or Marion Brower
+27 11 880 3924

About African Eagle

African Eagle Resources plc is a nickel development and exploration company listed on the London AIM (AFE) and Johannesburg AltX (AEA) stock exchanges. The Company's flagship project is the Dutwa Nickel project in Tanzania located about 25km south of Lake Victoria and 110km east of Mwanza within greenstone gold belts which host many of Tanzania's operating and developing gold mines. The Company is currently conducting a Bankable Feasibility Study, which is due for publication during 2013.

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