

# Dutwa Leaching Test Work Results

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African Eagle Resources plc

("African Eagle" or the "Company")

Results of Leaching Test Work on the Dutwa Nickel Project, Tanzania

African Eagle Resources plc (AIM: AFE; AltX: AEA) is pleased to announce positive results from extensive hydrometallurgical test work performed on representative ore samples from its flagship Dutwa Nickel project in Tanzania. The test work, using tank acid leaching at atmospheric pressure conditions, confirmed the recovery of nickel from each of the principal Dutwa ore types and demonstrates that an integrated two-stage leach process achieves improved metal extraction with reduced reagent demand.

On the basis of these favourable results, the Company and its design engineer Lycopodium are developing the preliminary Dutwa process flow sheet. The preliminary flow sheet will be modelled in the pilot plant test programme, scheduled to commence in the second quarter, which will result in the confirmation of the optimal final process flow sheet and plant design for the project, which will be reflected in the BFS. The pilot plant programme will be performed at the SGS Lakefield Orestest laboratory in Perth, Australia and will process approximately 50 tonnes of ore.

Key results:

- \* Efficient and consistent nickel extraction by atmospheric pressure tank acid leach confirmed
- \* Low acid consumption of Wamangola ore (350 to 450 kg/t) reaffirmed
- \* Rapid leach kinetics confirmed
- \* Chemistry of principal ore types validated
- \* Early test work on two-stage leaching achieves improved nickel extraction over single ore type processing with reduced reagent consumption
- \* Preliminary process flow sheet being developed with study engineer, Lycopodium
- \* Pilot-scale tests scheduled to begin Q2
- \* Drilling to obtain representative bulk ore samples underway

African Eagle's CEO Trevor Moss said "These test work results continue to be very encouraging and reconfirm that Dutwa's unusual nickel laterite mineralogy is amenable to proven atmospheric leach technology, which is in operation at First Quantum's Ravensthorpe mine in Western Australia. The final step of our systematic metallurgical programme, to commence shortly, will demonstrate the Dutwa flow sheet through the pilot plant in order to confirm the final process selection and plant design for the BFS."

Since the completion of the scoping study update in February 2011 the Company has been undertaking systematic and detailed metallurgical bench-scale test work at laboratories in Perth, Western Australia, to evaluate the suitability of various atmospheric leach processes for treating Dutwa ores. The principal outcome of this work was the selection of atmospheric tank leaching as the preferred treatment process, as announced earlier this year.

This test work programme has been conducted on bulk ore samples extracted from the Dutwa deposits by a targeted diamond drilling campaign and were designed to confirm the initial favourable metallurgical characteristics observed in the scoping study analyses, and to assess the variability of the ore types which are found at Wamangola and Ngasamo.

The hydrometallurgical tank leach test work was undertaken by ALS Ammtec at its

laboratory in Perth, Western Australia. Standardised atmospheric batch leach tests were performed on ground whole ore composites for each of the principal ores to investigate how the recovery of nickel varies with leaching time and sulphuric acid addition. The first phase of test work comprised a total of 28 tests.

Each composite, weighing approximately 0.5 tonnes, was created from sections of diamond drill core carefully selected to ensure they were representative of each ore type. The diamond drill hole locations were themselves chosen to be spatially representative of the planned pit shells for each of the two deposits, Wamangola and Ngasamo. The predominant ore types at Dutwa have been labelled Ferruginous Siliceous ("FeSi") and Transitional.

The chemical analyses of elements of interest in the five composites by X-ray fluorescence (XRF) are:

Sample	%Ni	%Co	%Fe	%Al	%Mg	%Mn	%Cr	%Si
Wamangola -FeSi	1.0	0.05	7.8	1.0	1.2	0.18	0.49	36.7
Wamangola -Transition 1	1.93	0.06	8.9	0.89	4.9	0.19	0.50	31.7
Wamangola -Transition 2	1.33	0.02	8.5	0.61	8.2	0.13	0.36	29.4
Ngasamo -FeSi	0.97	0.05	8.5	0.91	3.2	0.18	0.38	34.1
Ngasamo -Transition	0.96	0.02	6.9	0.36	9.2	0.12	0.45	28.3

The compositions of the bulk samples are in good agreement with the average compositions of mine grade material estimated from the deposit modelling by Snowden, reported on 11 January 2011, other than Wamangola Transition 1, which is a low magnesium variant with higher nickel content than the resource average for Wamangola transition ore. For this reason, a second Wamangola transition composite was created. Tests on this second composite have commenced.

All the bench-scale tank leach tests employed conservative conditions, such as a relatively coarse grind size (100% passing 212 micron), and an initial solids content of 30% w/w in the leach feed. The ores were prepared in potable water for consistency with the expected water quality at Dutwa. The leach temperature was 95(o)C and the leach duration was either 8 or 12 hours. Concentrated sulphuric acid (98%) was added at the start of the leach as the lixiviant.

Typical final results from the individual ore samples, after 12 hours leaching at 95(o)C were:

Test ID	Sample	* Acid Addition (kg/t ore)	Terminal Free Acid (g/L)	% Ni Recovered	Acid consumed (t/t Ni)
HY385	WM - FeSi	350	53	78.0	45.8
HY449	WM - FeSi	401	66	82.9	49.4
HY386	WM- Trans1	425	35	83.5	26.2
HY450	WM- Trans1	451	38	86.0	27.6
HY638	WM- Trans1	500	45	89.7	27.8
HY387	NG - FeSi	376	46	73.0	51.8
HY451	NG - FeSi	415	52	74.9	56.8
HY388	NG - Trans	526	28	76.1	71.1

HY452 NG - Trans 550  35  81.1  71.3
HY637 NG - Trans 625  52  85.5  77.6

Note: \* WM denotes Wamangola and NG denotes Ngasamo

Acid consumptions for the major "FeSi" ore type at Dutwa ranged from 350 to 415 kg/t ore, and across all samples from 350 to 625 kg/t ore. These results compare favourably with reported values for many Western Australian and South American laterites, which range from 500 to 700 kg/t. Acid consumption is mostly at the lower end of expected ranges for atmospheric leaching of nickel laterite ores. As seen in previous tests, the leaching progressed rapidly. Example results for recovery versus time are:

[illegible]

The results demonstrate that both "FeSi" and Transitional ores are amenable to atmospheric tank leaching using sulphuric acid, with nickel recoveries generally exceeding 70% after 4 hours and around 80% or higher after only 8 hours. With the use of leaching times longer than 12 hours, it is considered that the ultimate nickel recoveries may be higher than those reported. Further test work with leach times of up to 24 hours is being undertaken by African Eagle to confirm this. The Wamangola ores exhibit about 15% lower acid consumption than those from Ngasamo due to their lower magnesium content, and nickel leaches from Wamangola "FeSi" ore somewhat faster than from equivalent Ngasamo ore. Transitional ore has faster initial leaching rates than "FeSi", which is attributed to a greater proportion of the nickel being hosted in clay and serpentine minerals rather than goethite.

African Eagle also tested an integrated leaching process, with "FeSi" ore in an initial leach stage and transitional ore added in a second stage, to assess the viability of processing both Dutwa ore types in a single leach circuit. The tests were performed at 95(o)C, typically for 16 hours. The test parameters examined included the ratio of "FeSi" to Transitional ore, consistent with the Dutwa deposit and mining models, and total acid addition. Transitional ore is a significant component of the Ngasamo deposit.

Example results from a selection of these tests are tabulated below:

Test ID	Deposit/Ore	FeSi:Trans Ratio (w/w)	Acid Addition (g/L)	Terminal Free Acid Recovered (t/t Ni)	Overall % Ni consumed	% Acid consumed
HY548	Wamangola	2.8	313	30	74.0	34.3

HY476  Wamangola  2.8  350  37  78.6  36.3	
+-----+	
HY596  Wamangola  2.8  380  41  80.6  38.2	
+-----+	
HY477  Wamangola  2.8  405  48  84.2  38.6	
+-----+	
HY468  Wamangola  2.9  450  67  87.4  41.1	
+-----+	
+-----+	
HY567  Ngasamo  1.5  390  11  70.1  55.9	
+-----+	
HY547  Ngasamo  1.5  450  26  77.3  58.7	
+-----+	
HY591  Ngasamo  1.5  450  24  75.9  58.6	
+-----+	
HY494  Ngasamo  1.5  464  40  80.9  57.8	
+-----+	
HY623  Ngasamo  2.0  500  40  81.2  61.7	
+-----+	
HY473* Ngasamo  1.5  600  75  85.8  72.2	
+-----+	
* 12 hour test	

The results of these tests suggest that a two-stage leaching process could be used to treat "FeSi" and Transitional ores, in the same proportions by mass as they occur in the Dutwa deposits. Good overall nickel recoveries (ranging from 81% to 87%) were achieved from Wamangola ore, with sulphuric acid additions of 350 to 450 kg/t ore, equating to acid consumptions of only 38 to 41 tonne of acid per tonne of nickel recovered. Due to their chemistry and mineralogy, the Ngasamo ores required 50 to 100 kg acid/t ore more than Wamangola ores to obtain nickel recoveries above 80%.

Lower acid and iron concentrations were observed in the final leach solutions from these tests. Two-stage leaching is anticipated to offer benefits such as lower overall acid consumption and reduced reagent demands compared to leaching of individual ore types alone. Additional testing is being undertaken to develop and optimise the Dutwa leach process further.

#### About Dutwa

Dutwa was discovered in 2008 and has a JORC resource of 99 million tonnes at 0.93% Ni. The project is a nickel laterite project with unusually beneficial geometallurgical properties, which makes it amenable to straightforward atmospheric acid leaching with comparatively low acid consumption. This combined with ready mining from two hilltop deposits leads to strong project economics. A Bankable Feasibility Study is currently underway and due around the end of 2012.

#### About African Eagle

African Eagle Resources plc is a junior mining explorer and developer with development projects in Tanzania and Zambia. 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 quoted on the AIM market of the London Stock Exchange (AIM: AFE) and on the AltX of the Johannesburg Stock Exchange (AltX: AEA).

#### Technical terms

A glossary of technical terms used by African Eagle in this announcement and other published material may be found at [www.africaneagle.co.uk/p/glossary.asp](http://www.africaneagle.co.uk/p/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:

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