

**ASX Announcement** 

8 October 2014

# Strong Graphite mineralisation encountered from Trenching results at Nachingwea Graphite Project, Tanzania

## <u>HIGHLIGHTS</u>

- 28m @ 8.1% Total Graphitic Carbon (TGC) from within Trench 4 that contained 73m @ 5.6% TGC;
- ✓ 12m @ 6.9% TGC from within Trench 5 that contained 81m @ 4.4% TGC;
- A total of 403m of trenching and 4 pits were excavated across three exploration targets on two tenements - Injaa and Mkowe;
- All trenches encountered broad intervals of graphite mineralisation with coarse flake graphite logged in the trenches;
- Graphite mineralisation is open with trenching only testing 200m to 400m strike lengths within mapped 500m to 2000m long graphitic schist units. In addition, a number of trenches ended or started in graphite mineralisation;
- Geophysical techniques such as Electromagnetic (EM) surveys are now being planned to delineate additional graphite mineralisation;
- Discovery Africa has a dominant tenement position at Nachingwea located between and adjacent graphite projects held by Syrah, Magnis (formerly Uranex) and IMX Resources;
- The project area has excellent infrastructure with access locally to electricity, water, sealed roads and within 180km of Mtwara's containerised port facility.

Discovery Africa Limited (ASX: DAF - "Discovery Africa") is pleased to advise Total Graphite Carbon (TGC) assay results from its maiden trenching program across outcropping graphitic zones at the Company's 100% owned Nachingwea Graphite Project in Tanzania have now been received.

Three targets were selected for the first phase of trenching, with two lines of exploration trenches excavated, sampled and analysed for TGC at 1m intervals over each of the targets. A total of 6 trenches with a combined aggregate of 403m were excavated as





part of this program. The outcropping targets comprise one at Injaa Hill and two at Mkowe. Additional targets at Mandaware, Injaa South and a new tenement application remain untested (Figure 1).

The Board of Discovery Africa is extremely pleased to have completed its first significant exploration activity at the Project. This has been greatly facilitated by the ease of access and excellent infrastructure at Nachingwea and Mtwara. In addition, DAF has access to a technical and logistics field team that has helped the Company advance the project. We are highly encouraged by the initial trenching results and the assay results have assisted in identifying broad zones of coarse flake graphite with zones of higher grade graphite mineralisation encountered such as 28m @ 8.1% TGC.

The Company has only tested the easily accessible outcropping graphite schists on two of the five licenses at Nachingwea and will now utilise additional exploration tools such as electromagnetic (EM) geophysical surveying followed by drilling to locate anomalous zones of conductivity related to graphitic schists in future exploration works.

The Company is pleased by the results of the outcropping mineralisation but is also looking forward to conducting systematic exploration to define higher grade graphite mineralisation under potentially thin surficial cover and understanding the potential quality of the overall project.



Figure 1. Trench locations at Mkowe and Injaa Hill





## Trench and Assay Program

All 6 trenches intercepted broad zones of flake graphite mineralisation with zones ranging from 40m to 80m across strike and excellent continuity along 200m to 400m of strike that was investigated. Significantly, the zones of flake mineralisation are open and significant strike extent remains untested. In addition, the trenches often started or ended in graphite mineralisation thus remains open across strike. Geological mapping of the trenching has confirmed the presence of coarse graphite flakes in fresh and oxidized rocks. The assay results are presented in Table 1.

Trench_ID	East_start	North_start	Azimuth	Length (m)	Prospect	Complete trench intervals & higher grade zones
Trench001	493435	8854503	282	46	Injaa Hill	42m @3.62% TGC, including 9m @ 6.52% TGC from surface
Trench002	493508	8854686	288	83	Injaa Hill	83m @ 3.24% TGC, including 9m @ 6.70 % TGC from 4m and 7m @ 5.98 %TGC from 22m
Trench003	492806	8876065	331	40	Mkowe East	40m @ 4.03% TGC, including 4m @ 6.99% TGC from 0m, <b>7m @ 7.10% TGC from 11m and 6m @</b> <b>8.22% TGC from 22m</b>
Trench004	492501	8875818	342	73	Mkowe East	73m @ 5.58% TGC, including 9m @ 6.30% TGC from 0m, 28m @ 8.10% TGC from 13m,and 5m @ 6.05% TGC from 67m
Trench005	489850	8877758	254	81	Mkowe Central	81m @ 4.37% TGC, including 12m @ 6.90% TGC
Trench006	489829	8877506	266 <b>Total</b>	80 <b>403</b>	Mkowe Central	80m @ 3.43% TGC, including 5m @ 7.26% TGC

### Table 1. Complete trench intervals with higher grade zones of graphite mineralization

Notes

1. Subset results use an 5% cut-off and allow 1m of low grade

2. Assay method - GRAP CSA05V, SGS

3. Co-ordinate Datum - ARC1960 Zone 37s

## Mkowe Area

Two targets were tested within the Mkowe tenement. These were designated Mkowe East (Figure 2) and Mkowe Central (Figure 3). Trenching at both targets revealed wide zones of graphitic gneiss ranging from 40m to 80m in width with grades up to 10% TGC over short intervals. Previous rockchip sampling showed an average grade of 9% C. The geological logs by the onsite geologist noted coarse grain graphite flakes ranging from 1mm to 3mm.







Figure 2. Mkowe East Trench locations and trench sample results



Figure 3. Mkowe Central trench locations and trench sample results

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## Injaa Hill

Two trenches were completed at Injaa Hill testing a 200m strike extent (Figure 4). The trenches were 46m to 83m long and encountered zones up to 50m of fresh and oxidized graphite-quartzite schist and graphite gneiss. Coarse clotted flakes of graphite were logged within the trenches with additional zones of lower grade graphitic quartzite and gneiss. The coarse flake graphite gneiss was largely buried under soil within lower saprolite that showed weathering down to 2.5m to 4m from surface. A majority of samples were taken within the partially weathered saprolite/saprock zone. The graphitic gneiss has medium to very coarse flake size with individual flakes ranging from 1mm to 5mm in size.



Figure 4. Trench locations at Injaa Hill and trench sample results





## Geological Background

The Nachingwea region is underlain primarily by high grade metamorphic rocks of the Proterozoic Mozambique Mobile Belt that wrap around the eastern margin of the Archaean Lake Victoria Granite-Greenstone terrane in Tanzania. The mobile belt is host to a number of large graphite deposits that include several of those around Nachingwea and other occurrences at Mahenge and Arusha in Tanzania. The southern extension of the mobile zone hosts Syrah's flagship Balama Project and Tritton's Nicanda Hill project both in Mozambique.

The basement rock-types comprise various inter-bedded units of fine to medium grained granitic gneiss with variable bands of biotite, garnet and hornblende gneiss with crystalline limestone (marble) and abundant outcropping quartzite and meta-sediments.

At Nachingwea, graphitic mineralisation is found in three main forms (Figure 5):

- 1. Medium to coarse grained flake graphite quartz schist collectively named graphitic quartzite. These tend to forms topographic highs and are reasonably well exposed (Figure 5a).
- 2. Medium to very coarse grained flake graphite granitic/gneiss. These are the most coarse grained and are often difficult to locate because they are prone to deeper weathering and are poorly exposed (Figure 5b).
- 3. Massive to semi-massive zones of flake to crystalline graphite (Figure 5c).

The graphite crystals are typically well formed and evenly distributed amongst the quartzite dominated bands but can form coherent clusters/clots within the gneissic/granitic units with sizes ranging up to 15mm.



Figure 5. Three main varieties of graphite mineralisation at Nachingwea. A - graphitequartzite, B - graphite-gneiss and C - semi massive graphite schist

## Nachingwea Project Description

The Nachingwea Project is well placed with access to existing infrastructure associated with the developing gas industry at Mtwara some 180km along sealed roads to the east (Figure 6). The Company has 4 granted exploration licenses comprising a total of 420km<sup>2</sup> of tenure and one license application, with multiple occurrences of outcropping graphitic schist.







Figure 6. Locality map showing Nachingwea and Mtwara port facility and DAF licenses in relation to Uranex (green) and Syrah (blue). Inset location within Tanzania

#### ENDS

#### For further information:

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#### Competent Person's Statement

The details contained in the document that pertains to exploration results, ore and mineralisation is based upon information compiled by Mr Brendan Cummins. Mr Cummins is a Member of the Australian Institute of Geoscientists (MAIG) and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is 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" (JORC Code). Mr Cummins is a consultant to Discovery Africa Limited and has consented to the inclusion in the report of the matters based on the information in the form and context in which it appears.

#### JORC Code, 2012 Edition, Table 1 Report

The Table 1 Report detailing "Sampling Techniques and Data" and "Reporting of Exploration Results" in accordance with 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC Code) was released to the ASX by Discovery Africa Limited on 28 February 2014.

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# **JORC Code, 2012 Edition – Table 1 report**

## **Section 1 Sampling Techniques and Data**

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>Rock chip samples taken from outcrop or from surface float thought to be derived from shallow buried cover within a 15m radius</li> <li>Trench samples were taken in 1m intervals along the floor or side of the trench</li> <li>Trenches range in depth from 1.0m to 2.5 with an average depth of 1.8m</li> <li>Trenches have an average width of 1m</li> <li>Surface rockchip and trench samples range between 0.5kg and 2.5kg in weight</li> <li>The Company has taken all care to ensure no material containing additional carbon has contaminated the samples</li> <li>All samples are individually labelled and logged</li> </ul>
Drilling techniques	<ul> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul> <li>Not applicable, DAF has not completed any drilling on the property</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>Not applicable, DAF has not completed any drilling on the property</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> </ul>	<ul> <li>Surface rockchip samples were described in basic terms – lithology, degree of weathering, flake size and an estimate of grade</li> <li>Trench rockchip samples were described in basic terms – lithology, degree of weathering, flake size and an estimate of grade in 1m</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	intervals
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>The surface rockchip samples have not undergone any field splitting or composition</li> <li>Trench samples were taken in 1m intervals with sampling techniques used to ensure representivity of the target rocktype</li> <li>No splitting or compositing of the trench samples was undertaken</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul> <li>The samples were sent to Mwanza in Tanzania for preparation and pulps were then sent to South Africa for TGC analysis for Total Graphitic Carbon (TGC) GRAP_CSA05V LECO Total Carbon.</li> <li>The TGC analysis has been carried out by an industry accepted and recognised commercial laboratory - SGS</li> <li>TGC is the most appropriate method to analyse for graphitic carbon and it is total analysis</li> <li>SGS inserted its own standards and blanks and completed its own QAQC for each batch of samples</li> <li>Certified standard material was inserted at a rate of 5%</li> <li>Field duplicates were inserted at a rate of 5%</li> <li>No blanks were inserted by the Company</li> <li>DAF is satisfied the TGC results are accurate and precise and suitable for use in this Release</li> </ul>
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> <li>Accuracy and quality of surveys used to locate drill holes (collar and protocol)</li> </ul>	<ul> <li>The data has been manually updated into a master spreadsheet which is appropriate for this early stage in the exploration program</li> <li>A handheld GPS was used to identify the positions of the pits and</li> </ul>
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Criteria	JORC Code explanation	Commentary
data points	<ul> <li>down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>trenches in the field</li> <li>The handheld Garmin GPS has an accuracy of +/- 5m</li> <li>The datum is used is ARC 1960 UTM zone 37</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>The trenches were excavated from the three selected areas of graphite mineralization defined from first pass mapping at Injaa and Mkowe.</li> <li>No sample compositing has been applied.</li> <li>The project is considered too early stage for Resource Estimation</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<ul> <li>Trenches were designed to sample across a section of the known strike of the mineralization where the cover was not too deep</li> <li>Trench samples was undertaken in general in a direction across the strike of the graphite schist.</li> <li>The representivity of the surface rock chip samples cannot be assessed given the lack of continuous outcrop in these areas. These samples are only indicative results of the local geology and no claim to the volume or extent of this sample material is made</li> <li>Additional sampling and mapping is required to fully understand the mineralization and its grades in relation to controlling structures</li> </ul>
Sample security	The measures taken to ensure sample security.	<ul> <li>The rockchip and trench samples were taken under the supervision of an experienced geologist employed as a consultant to DAF</li> <li>The samples were transferred under DAF supervision from site to the local town of Nachingwea</li> <li>The samples were then transported from Nachingwea to Dar es Salaam and then transported to Mwanza where they were inspected and then delivered directly to SGS process facility.</li> <li>Chain of custody protocols were observed to ensure the samples were not tampered with post sampling and until delivery to the laboratory for preparation and analysis</li> <li>Transport of the pulps from Tanzania to South Africa was completed under the supervision of SGS</li> </ul>
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	Not applicable, DAF has not completed any drilling on the property

## **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status Exploration done by other	<ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>The rock chip and trench sampling was undertaken on granted licenses PL 6753/2012 and PL 7211/2012, combined they have a total area of 155km2</li> <li>The company also has 100% ownership of the licenses through a Tanzanian subsidiary – Hatua Resources</li> <li>Subsistent landowners of the affected villages were supportive of the recently completed sampling and exploration program.</li> <li>There are some historic government records of geologists evaluating the area for graphite in the 1960's but no other modern exploration</li> </ul>
parties		has been undertaken over the DAF tenements
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>The deposit type is described as schist and quartzite hosted flaky graphite.</li> <li>The mineralisation is hosted within upper amphibolite facies gneiss of the Mozambique Mobile Belt.</li> <li>Over 95% of the exposures within the tenement comprise 3 main rock types that include alternating sequences of:</li> <li>Graphitic schist – feldspar and quartz rich varieties.</li> <li>Marble and,</li> <li>Quartzite.</li> <li>The area is also partially overlain with Tertiary sediments of unknown thickness.</li> </ul>
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly</li> </ul>	• Not applicable, DAF has not completed any drilling on the property

Criteria	JORC Code explanation	Commentary
	explain why this is the case.	
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>The procedures use for aggregation were a 5% TGC cut-off and allowed 1m of low grade TGC</li> <li>No weighted averaging was required due to consistent 1m width sampling</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</li> </ul>	<ul> <li>Due to the potentially large strike length of the mineralization the trench sampling program has been selective and trench sampling has only assessed the local grade distribution of the graphitic zones from surface to shallow depths &lt;2.5m).</li> <li>The trenches were located between 200 and 400m along strike depending on the thickness of the surface cover</li> <li>Further additional widespread surface sampling, mapping and drilling is required to understand the geometry of the graphite mineralisation</li> </ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	<ul> <li>Refer to Figures 2 - 4 that shows the location of the trenches and surface rockchip locations</li> </ul>
Balanced reporting	<ul> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.</li> </ul>	<ul> <li>All trench rock chip samples have been reported in Table 1</li> </ul>
Other substantive exploration data	<ul> <li>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</li> </ul>	No further information has been compiled to date
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul> <li>Further surface sampling techniques that may include pitting and trenching with mapping</li> <li>Initial metallurgical testwork – flotation and particle sizing</li> <li>Surface EM</li> <li>Data compilation, analysis and ranking prior to drilling</li> </ul>