

26 February 2020

ASX: BEM

ASX Announcement

BEM Completes Pilot Program - Stage 1

- **Stage 1 pilot work program completed by BGRIMM, with results demonstrating improvements in both graphite recovery and final product grades.**
- **Stage 2 (60 tonne) pilot work expected to commence at BGRIMM's Beijing facility in March 2020.**
- **Preliminary process plant equipment selection complete pending finalisation.**
- **DFS targeted to be completed in Q4 of 2020.**

BlackEarth Minerals NL (**ASX: BEM**) ("**BlackEarth**", the "Company") is pleased to announce that it has received results from laboratory testwork completed by the Beijing General Research Institute of Mining & Metallurgy ("BGRIMM"), for Stage 1 of the Agreed work ("Agreement"), undertaken to finalise all process engineering related matters, as part of the Company's definitive feasibility study ("DFS") on its Maniry Graphite Project in Southern Madagascar ("Maniry", the "Project").

Following the successful testwork from Stage 1, under the Agreement, a Stage 2 test program will be undertaken and is planned to be completed in Q2 of 2020.

The 2 Stages of testwork by BGRIMM are outlined below:

Stage 1

Stage 1 of testwork by BGRIMM was based on an initial 250kg sample of Maniry graphite material, with results from this stage being used to confirm all work carried out at ALS Perth (ASX Release - 12 December 2018). The testwork also aimed to optimise process flow, reagent systems, industrial equipment selection and process operating conditions, for the Stage 2 large scale process pilot test.



Figure 1-1 Test Pit sampling

Stage 2

The second stage of testwork to be undertaken by BGRIMM, will involve a large scale pilot test program, and will use approximately 60 tonnes of Maniry graphite ore. This stage will be used to optimise the Maniry flow sheet, provide final equipment specifications and produce sufficient material required to finalise legally binding offtake arrangements.

BlackEarth Managing Director, Tom Revy, commented: “The Completion of the Stage 1 testwork by BGRIMM is another milestone achieved in further advancing our current feasibility study and qualifying Maniry graphite concentrate as a high purity, large flake product, suitable for the use in refractory and expandable markets, and in the manufacture of lithium ion battery anodes. We look forward to BGRIMM completing Stage 2 of the test work, as the outcomes will be used to finalise our definitive feasibility study and offtake agreements.”

Stage 1 Test Work Results

As part of the Stage 1 testwork, a 250kg sample from the trial mining test pit (ASX Release - 13 November 2019) was despatched to BGRIMM.



Figure 1-2 Sample Transport

The test work program comprised:

- Head assay analysis
- Process mineralogy
- Batch flotation test work to confirm flowsheet to maximise flake preservation while achieving the target grade of >95% TGC, the work included;
 - Primary and secondary grind size
 - Reagent type and addition rate
 - Flotation time
- Flotation cleaner optimisation;
 - Number of stages of regrind and flotation
 - Regrind time

- Regrind media
- Confirmatory locked cycle testing of established flowsheet
- Bond Rod Work Index
- Preliminary concentrate filtration and tailings thickening test work
- Initial equipment selection

Mineralogical investigation was undertaken by a combination of optical microscope, scanning electron microscope and XRD. The content Mineral composition and relative content of the ore is shown in Table 1.

Table 1 Mineral composition and relative content of feed material

Mineral name	Content, %	Mineral name	Content, %
Graphite	10.30	Diopside	1.07
Pyrite	0.37	Rutile	0.22
Quartz	58.07	Biotite	0.35
Kaolinite (Dickite)	11.53	Chlorite	0.62
Dolomite	10.15	Apatite	0.38
Calcite	2.59	Gahnite	0.22
Orthoclase	2.70	Barite	0.08
Albite	1.10	Other minerals	0.25

Investigation of the dissemination size of graphite shows that the grain size of graphite is coarse, mainly distributed between 0.043mm and 0.295mm, with the 69.93% of the graphite within the +0.074mm fractions. The degree of graphite particle liberation is shown in Table 2 with the results indicating that finer graphite recovery and grade will benefit from additional stage grinding.

Table 2 Graphite particle liberation

Grinding Fines %-0.2mm	Free particle %
45	54.60
53	58.08
63	62.28
78	67.22

The flotation test work included open circuit flowsheet development, and the test sample was predominately oxide ore and had an average head grade of 9.3% TGC. The test work confirmed the following basic flowsheet could achieve the target grade >95% TGC in all concentrate size fractions.

- Primary Rod Milling and rougher flotation
- Secondary Ball Milling and scavenger flotation
- Multiple regrind stages (6) combined with 7 stages of cleaner flotation with no interstage screening.

The results achieved were comparable to data produced in previous test work by ALS Perth (ASX release 12 December 2018).

Following the open circuit batch testing, locked cycle testing was undertaken based on the flowsheet established. The results showed an overall graphite recovery of >95% and concentrate produced as shown Table 3.

Table 3 Locked Cycle test 2 concentrate results

Size fraction, mm	Yield, %	Cumulative yield, %	FC grade, %
+0.5	0.41	0.41	96.47
-0.5+0.3	12.50	12.91	95.72
-0.3+0.18	15.16	28.07	95.26
-0.18+0.15	13.32	41.39	96.25
-0.15+0.074	27.05	68.44	96.80
-0.074	31.56	100.00	95.93
Total	100.00		96.08

The test work was also used to confirm initial equipment selection as shown in Table 4.

Table 4 Preliminary equipment selection

Unit operations	Equipment type
Crushing	Two stage jaw and cone crushers
Primary Milling	Rod Mill
Secondary Milling	Ball Mill
Primary regrind	Ball Mill
Secondary regrind	Stirred mill
Flotation	Mechanical cells
Thickening	High rate
Filtration	Plate and frame

Based on the confirmed results achieved in Stage 1, in March 2020, BlackEarth and BGRIMM now plan to proceed with the Stage 2 large scale 60 tonne pilot test program. The Stage 2 program will confirm and optimise the flow sheet, establish scale up factors, finalise equipment specification, likely concentrate specifications and provide bulk concentrate for market end user testing.

CONTACTS

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BlackEarth encourages investors to update their contact details to stay up to date with Company news and announcements here: <http://www.blackearthminerals.com.au/update-details/>

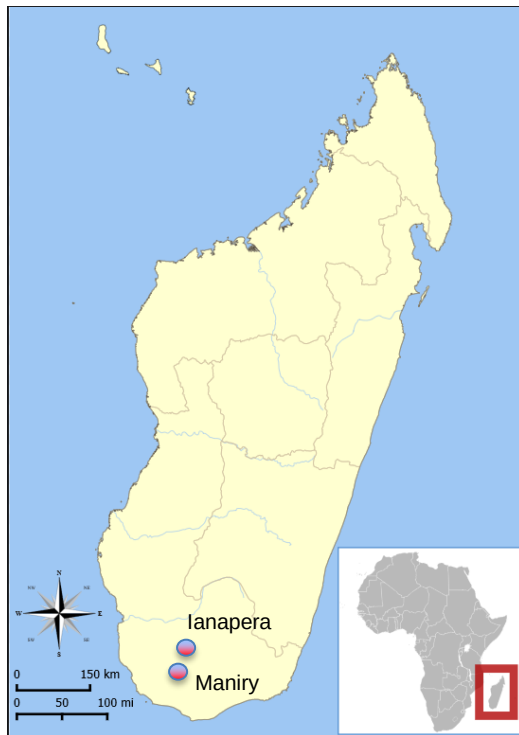
Competent Person's Statement

- The information in this report that relates to metallurgical test work results is based on information compiled and reviewed by Mr David Pass, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Pass is an employee of BatteryLimits. Mr Pass has sufficient experience relevant to the mineralogy and type of deposit under consideration and the typical beneficiation thereof to qualify as a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2012 Edition). Mr Pass consents to the inclusion in the report of the matters based on the reviewed information in the form and context in which it appears.

For more information – www.blackearthminerals.com.au

About BlackEarth Minerals NL

BlackEarth Minerals NL (ASX:BEM) is an ASX listed company focussed primarily on the development of its 100% owned Madagascan Maniry and lanapera graphite projects. For more information, visit <https://www.blackearthminerals.com.au>.



Project Life	10 Years
NPV @ 10% pre-tax	US\$ 103M
IRR pre-tax	42%
Project CAPEX Stage 1	US\$ 41M (500ktpa ore)
Project CAPEX Stage 2	US\$ 29M (1Mtpa ore)
Payback for Stages 1 & 2	3.7 years (Stage 1 - Only 2.7 years)
Annual graphite production	Av 30ktpa (Stage 1 – Years 1-3) Av 60ktpa (Stage 2 – Years 4+)

Project	Deposit	Tonnes (Mt)	TGC Grade (%)	Contained Tonnes (t)
	Razafy - Indicated	8	7.22	677,600
	Razafy - Inferred	3.2	6.8	217,600
	Razafy - Total	11.2	7.1	795,200
Maniry	Haja - Inferred	9	5.79	521,100
	Haja Total	9	5.79	521,100
Total Resources		20.2	6.51	1,316,300

Above: Maniry Graphite Project Scoping Study Results
Left: Location of BEM's Maniry & lanapera graphite projects

The Razafy Resources (both indicated and inferred) are reported at 6% TGC with cut off constraining wireframe solids defined at a nominal 3% cut off grade.

The Haja Resource is reported at 5% TGC cut off with cut off constraining wireframe solids defined at a nominal 15% cut off grade.

The indicated mineral resource at Razafy was first reported in the announcement of 14 August 2018 entitled "Update – Maiden Resource Estimation for Razafy at Maniry Project".

The inferred mineral resource at Razafy was first reported in the announcement of 14 August 2018 entitled "Update – Maiden Resource Estimation for Razafy at Maniry Project".

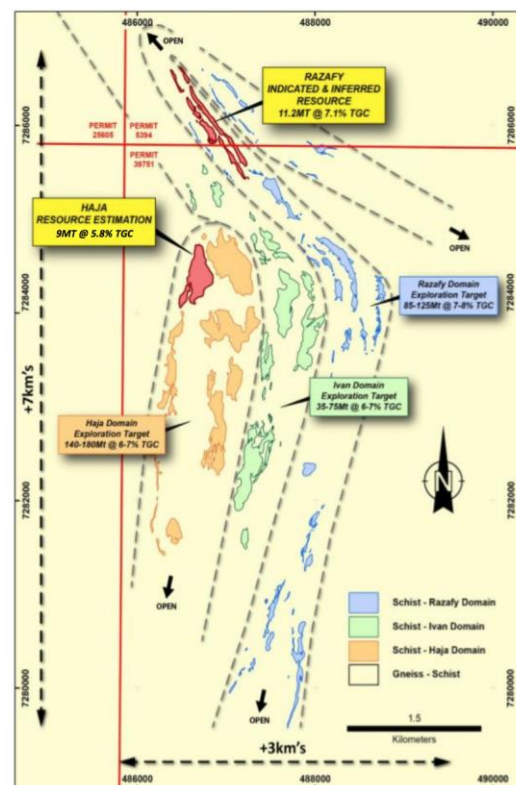
The inferred mineral resource at Haja was first reported in the announcement of 27 December 2018 entitled "Maiden Resource Estimation for Haja at Maniry Graphite Project".

There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised.

The potential quantity and grade of an exploration target is conceptual in nature, there has been insufficient exploration to determine a mineral resource and there is no certainty that further exploration work will result in the determination of mineral resources or that the production target itself will be realised.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement in respect of the scoping study results (see the announcement of 30 January 2019 entitled "BlackEarth announces positive Scoping Study results for the Maniry Graphite Project") and that all material assumptions and technical parameters underpinning the estimates of forecast financial information continue to apply and have not materially changed.

Additionally, the Company confirms that it is not aware of any new information or data that materially affects the information regarding the indicated mineral resource at Razafy in the announcement of 14 August 2018 entitled "Update – Maiden Resource Estimation for Razafy at Maniry Project", which forms the basis of the production targets outlined in the table above.



Maniry Graphite Project – Overview

For further information regarding the Maniry exploration target, please refer to the announcement entitled "Exploration Target Update" dated 14 August 2018 "Update Maniry Exploration Target"

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

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

Criteria	Commentary
Sampling techniques	Drilling - the drill hole database only consists of diamond drill holes - sampling consists of 2m composite samples of quarter core with breaks at lithological discontinuities - typical 3-5Kg - samples are cut using a diamond blade core saw - duplicate samples are collected every 20th sample for QAQC purposes - standards (CRMs) are inserted every 20th sample for QAQC purposes - sampling is considered to be comprehensive and representative - quarter cores are sent for analysis, the remaining core material is retained and stored in BEM's secure core shed - metallurgical samples were obtained from diamond drilling using ½ cores. A split of crushed sample was used for metallurgical test work - downstream testwork was based on a split sample taken from concentrate produced in previous metallurgical testwork program which results were reported on 18th December 2018 Trenching - trenches are dug perpendicular to the strike of mineralised units with a JCB backhoe loader - trained geologists log and systematically sample the trenches using a rock hammer at 2m intervals - CRMs are inserted ~every 20th samples for QAQC purposes Bulk Samples – 250kg & 60tonnes a 250kg bulk sample initially obtained from two adjacent hand dug pits, followed by the 60t bulk sample, were taken in the same location in the east strata of the Razafy deposit (digging site centred on 487,040mE, 7,285,860mN). The excavation location was chosen between drillholes MNDD047 and MNDD048, with trench MNT012 confirming the location of the strata and carbon grades, in an area where the mineralisation is thick and the base of oxidation close to the topographical surface
Drilling techniques	- diamond drilling only - core size is HQ and NQ typically in 0.5-1.5m runs - core from a select number of drill holes are orientated
Drill sample recovery	- core recovery is routinely recorded every metre by trained geologists - no bias or relationship has been observed between recovery and grade - recovery is typically +80% within weathered rock, and +95% in fresh rock
Logging	Drilling - all drill holes are logged by qualified and experienced geologists - logging includes descriptions of geotechnical, mineralisation, structural and lithological aspects of the core and is digitally recorded using an industry standard code system - cores are systematically photographed - the data collected offers sufficient detail for the purpose of interpretation and further studies

Criteria	Commentary
	Trenching - all trenches are logged by qualified and experienced geologists - logging includes descriptions of mineralisation, structural and lithological aspects of the encountered rocks and is digitally recorded using an industry standard code system - the data collected offers sufficient detail for the purpose of interpretation and further studies
Sub-sampling techniques and sample preparation	Drilling - quarter cores are cut using a diamond core saw and collected for assay 2 metre composite sampling is deemed to be comprehensive and representative for the style/type of mineralisation under investigation - duplicate samples are taken (remaining quarter core) every 20th sample - sample preparation from quarter core to pulp is undertaken at BEM's sample preparation facility in Antananarivo (former Intertek-Genalysis facility) Trenching - the base of the trench is chipped to obtain a representative sample over 2m intervals. Although the sampling technique is not ideal, the technique is deemed satisfactory for this exploratory phase of work - QAQC measured are deemed satisfactory for this type of sampling and exploratory phase of work - the sample size (3kg) is deemed satisfactory to the grain size of the material being sampled - sample preparation from 3Kg chip sample to pulp is undertaken at BEM's sample preparation facility in Antananarivo Bulk Samples – 250kg & 60tonnes - the material of the 250kg bulk samples was sampled by two 1kg sample for both pits during excavation and samples prepared at BEM's Antananarivo preparation laboratory - a dense grid sampling (0.5mx1m lines, for a total of 39 samples of 1kg) covering the complete excavation area was completed mid depth of the excavation of the 60t bulk sample for close space analysis of the mineralisation continuity and full control of the quality of the excavated material. The samples were prepared at BEM's Antananarivo preparation laboratory for analysis at Intertek Perth - in both instances, portable XRF measurements were completed during excavation in parallel to the sampling
Quality of assay data and laboratory tests	Drilling & Trenching - assaying is undertaken by Intertek Genalysis in Perth (Aus) - samples are pulverised to 75 microns, roasted to 420°C and digested with a weak acid. Final analysis is undertaken by CS analyser (Code: C73/CSA) - standards and duplicates (duplicates only for core, not for trench samples) are inserted every 20th sample by the BEM technical team in addition to the internal QAQC from the laboratory. No issues been observed with QAQC Bulk Samples – 250kg & 60tonnes - for the 250kg bulk samples, assaying for the 4 samples obtained during excavation of the two pits were analysed by ALS Perth. The complete 250kg bulk sample was also analysed by BGRIMM as part of the metallurgical testing

Criteria	Commentary
	- for the 60t bulk sample, the 39 samples of the dense grid sampling were analysed at Intertek Perth. The 60t bulk sample was also analysed by BGRIMM as part of the metallurgical testing Metallurgical Tests - metallurgical work was undertaken by BGRIMM technology Group in Beijing managed by BatteryLimits Pty Ltd. The metallurgical test work comprised. - Head assay, mineralogy and initial comminution testing - Primary milling optimisation - rougher flotation - Cleaner flotation and re grind optimisation - Locked cycle flotation test - Concentrate assay and sizing - Industry standard test methods and analytical techniques have been employed
Verification of sampling and assaying	- significant intersections have been verified by alternative company personnel - no twin holes have been completed - all data is recorded digitally using a standard logging system and files are stored in an industry standard database
Location of data points	Drilling - Razafy: all collars have been located using a DGPS (accurate to 1cm) Projection and grid systems used: UTM (WGS84 Z38S). The down hole azimuth and dip is recorded using a Magshot down hole instrument (accurate to 1deg) - Haja: topography and collar survey data is based on measurements taken on GPS handheld device Trenching - all XYZ surveying is collected using a handheld Garmin GPS accurate to $\pm 4m$ - Projection and Grid system used: UTM (WGS84) Z38S Bulk Samples – 250kg & 60 tonnes - the location of the two pits where the 250kg bulk sample was obtained is based on measurements completed using a GPS handheld device - the limits of the 60t bulk sample excavation were surveyed using a GPS handheld device, as were the end points of the dense grid sampling lines covering the excavation site at mid-depth
Data spacing and distribution	Drilling - the drill hole grid spacing is 100m along strike by 30m across strike at Razafy, and 50m across strike at Haja - the drill hole spacing allowed to follow the graphitic mineralisation outlines from section to section and down dip - samples have been composited to 2m length within the mineralised lenses interpreted to complete the statistical analysis, variography and estimation Trenching - the geologist in charge of the program systematically samples all visible mineralised units as well as the lithologies either side of these - this data is not thought to be appropriate for resource estimation purposes - no sample compositing has been applied.
Orientation of data in relation to	Drilling the drilling grid matches the strike of the orebody

Criteria	Commentary
geological structure	- the orientation of the drilling is not expected to introduce sampling bias as drill holes intersect the mineralisation at a sufficient angle to the dip of the orebody, in addition, the mineralisation envelopes are interpreted in three-dimensions Trenching - the trenches are oriented perpendicular to the perceived orientation of the outcropping mineralisation, but since sampling is two-dimensional and not perpendicular to the dip of mineralisation, reported intercepts will be wider than the true width of the mineralised unit Bulk Samples – 250kg & 60 tonnes the 60t bulk sample was excavated within an area of approximately 7m along strike by 3m across strike
Sample security	Drilling - samples are cut and sampled on site before being transported to BEM's sample preparation facility in Antananarivo - sample pulps are freighted by plane to Intertek Genalysis in Perth (Aus) for assaying - the remaining core samples are kept in a secure facility adjacent to BEM's offices in Antananarivo Trenching - samples are packaged and stored in secure storage from time of gathering to sample preparation Bulk Samples – 250kg & 60 tonnes - the material for the two bulk samples was bagged on site into bulk bags, and loaded on trucks - the 250kg sample was air freighted to China from Antananarivo and delivered to BGRIMM - the 60t bulk sample was trucked to the port of Toliara, loaded in a container, shipped to China and delivered to BGRIMM
Audits or reviews	sampling procedures has been reviewed by external auditors Sigma Blue Pty. Ltd. and OMNI GeoX Pty. Ltd, with site visits at the beginning of the programmes

Section 2 Reporting of Exploration Results

(Criteria listed in section 1 also apply to this section.)

Criteria	Commentary
Mineral tenement and land tenure status	- work was undertaken upon permits 5391, 5393, 5394, 25094, 25605, 39751 - the tenements are located within the inland South West of Madagascar - tenements are held 100% by BlackEarth Madagascar SARL, a wholly owned subsidiary of BlackEarth Minerals NL through Madagascar Graphite Ltd - no overriding royalties are in place - there is no native title agreement required - tenure does not coincide with any historical sites or national parkland - tenements are currently secure and in good standing

Criteria	Commentary
Exploration done by other parties	- regional mapping by BRGM - historical diamond drilling and trenching by Malagasy Minerals. Ltd. (2014-2016)
Geology	The project overlies a prominent 20km wide zone consisting of a folded assemblage of graphite and quartz-feldspar schists, quartzite and marble units, with lesser intercalated amphibolite and leucogneiss. This zone, termed the Ampanihy Belt is a core component of the Neoproterozoic Graphite System. The belt is interpreted as a ductile shear zone accreted from rocks of volcanic and sedimentary origins
Drillhole Information	refer to Section 1
Data aggregation methods	- cut offs of 5%, 10% 15% and 20% graphitic carbon have been used for aggregated reported intercepts - no cutting of high grades is applied - all trench samples represent a 2m interval length - metallurgical sample bulk samples were composited and subject to two stage crushing to a nominal -3.35mm and mixed to form a master composite. The master composite was there rotary split in to test work charges.
Relationship between mineralisation widths and intercept lengths	- sampling does not occur perpendicular to the dip of mineralisation and therefore is not truly representative of the true width of the mineralised unit - the dip of the mineralised units is known from previous drilling and/or the trenching logging - the dip of the mineralised unit is shown within the diagrams
Diagrams	refer to body of text above for diagrams and tabulated intercepts when applicable
Balanced reporting	- all significant results that are material to the project have been reported - any data that has not been released has been deemed insignificant
Other substantive exploration data	no other exploration related data has been collected that requires reporting
Further work	- future exploration work at Maniry is likely to include further mapping, trenching and drilling Additional downstream processing including purification of spheronised graphite products for Li-ion battery anodes. This will be followed by electrochemical cell testing to examine the purified, spheronised material's performance. - additional downstream processing including purification of spheronised graphite products for Li-ion battery anodes is planned. This will be followed by electrochemical cell testing to examine the purified, spheronised material's performance - Further pilot scale bulk run program is planned based on the additional bulk 60t sample taken at the same time as the 250kg sample

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	Commentary
Database integrity	- the drill hole database has been loaded in an industry standard database - validation for duplicates, missing data, outliers, erroneous intervals is completed before proceeding to the interpretation and analysis

Criteria	Commentary
Site visits	- Annick Manfrino, Competent Person for the resource estimate visited the site during the drilling programme in March-April 2018 - drilling, sampling and sample preparation procedures were reviewed and are considered of industry standard
Geological interpretation	Razafy - the confidence in the geological interpretation of the graphitic lenses is considered robust for the purpose of estimating and reporting Indicated and Inferred resource - graphite mineralisation hosted within graphitic schists and gneiss, visibly recognizable from the background rock - the complete extent of the two main lenses outcrop and can be followed by surface mapping - trenches have been used with success in early exploration stages to confirm the strike continuity - no major faulting or other structural disruption has been mapped in the deposit area and the location of the drilling intercepts of the graphitic mineralisation confirms the position of the lenses anticipated from the trenches observations - the boundary between graphitic schists and gneiss and the surrounding material is usually sharp with TGC below 0.5% in the background material changing to +3% grades in the graphitic lenses, leaving few options to shift the boundaries position when interpreting the mineralised body - mineralisation envelopes were interpreted at a nominal +3% TGC cut-off grade - only rare occurrences of non-mineralised material are included in the two main lenses - logged graphitic rich zones correspond extremely well with TGC assay results - no alternative interpretation has been considered at present - the weathered horizon (oxide) can easily be interpreted from the sulphur depression observed in the assay data. The oxide horizon is approximately 20m thick. The transition zone is usually of very limited thickness when present Haja - the confidence in the geological interpretation of the graphitic lenses at Haja is considered robust for the purpose of estimating and reporting a resource of the Inferred category - graphite mineralisation hosted within graphitic schists and gneiss, visibly recognizable from the background rock - the complete extent of the Haja lenses outcrop and can be followed by surface mapping - trenches have been used with success in early exploration stages to confirm the strike continuity - no major faulting or other structural disruption has been mapped in the deposit area and the location of the drilling intercepts of the graphitic mineralisation confirms the position of the lenses anticipated from the trenches observations - the boundary between graphitic schists and gneiss and the surrounding material is usually sharp with TGC below 0.5% in the background material changing to +1.5% grades in the graphitic lenses, leaving few options to shift the boundaries position when interpreting the mineralised body - mineralisation envelopes were interpreted at a nominal +1.5% TGC cut-off grade - the Haja orebody is composed of three adjacent parallel lenses dipping 25° to the east which often coalesce into a single body - logged graphitic rich zones correspond extremely well with TGC assay results - no alternative interpretation has been considered at present - the base of the weathered horizons- oxide & transition- can be interpreted from the sharp change in sulphur grades
Dimensions	Razafy - the Mineral Resource encompasses the Razafy deposit and a new prospect named Razafy East - the Razafy deposit comprises two major lenses – East Main d West Main lenses-,

Criteria	Commentary
	and four minor lenses adjacent to the main zone - the solids interpreting the two main zones are 1450m long with a maximum plan width of 65m for the East main lens, and 60m for the West main lens in the south part of the deposit - the two main lenses extend 155m depth below surface and define the lowest depth below surface at which a resource has been estimated - the Razafy block model extents 1625m along strike, 900m across strike and 200m depth to cover the East Razafy prospect area Haja - the resource model is based on six fences of drill holes 100m apart with drill holes separated by 50m on section - the Haja resource model cover the volume occupied by the Haja orebody and extents 725m north-south, 550m east-west and 210m at depth - the solids interpreting the Haja graphitic orebody extents 630m north-south, 500m east-west and 170m vertically
Estimation and modelling techniques	Razafy - TGC and sulphur have been estimated by ordinary kriging using 140m along strike by 50m down dip by 12m across strike search ellipse which defines the outmost distances to which blocks can be extrapolated from drill holes - drill sections are spaced regularly at a 100m (with the exception of the first northern section which is 200m away from the second section), with drill holes spaced at 30m across sections - kriging parameters for both TGC and sulphur were obtained from modelling the directional variograms (normal variograms) for the two main lenses - nugget values are 20% of the total sill for both elements - the grade estimation was completed using Geovia GEMS mining software with partial blocks to honour the volume of the grade envelope solids - the block model is based on 25m along strike by 5m across strike by 5m Z, which is considered adequate given the current drill spacing of 100m section lines by 30m spacing - mineralised envelopes were used as hard boundaries during interpolation - the base of oxide was used as a hard boundary for the sulphur estimation but as a soft boundary for the TGC estimation - no top-cut measure was used as there is no evidence of outliers. The maximum TGC value for the 2m sample assays is 15% - the grade estimates -TGC & sulphur- were validated visually and statistically and honour spatially and statistically the input data - no previous estimate exists for this deposit Haja - TGC and sulphur have been estimated by ordinary kriging using Geovia GEMS mining software - mineralised envelopes were used as hard boundaries for the TGC during the interpolation - oxidation zones were used as hard boundaries for the interpolation of Sulphur - no top-cut was used for TGC but the influence of grades above 6.5% TGC was limited to 70mx70mx6m during interpolation. The 6.5% TGC grade corresponds to a statistical change in the data distribution. The maximum TGC value is 11.45% - no top-cut measure was used for sulphur - the grade estimates -TGC & sulphur- were validated visually and statistically and honour spatially and statistically the input data - no previous estimate exists for this deposit
Moisture	the resource is reported for Razafy and Haja on a dry tonnage basis

Criteria	Commentary
Cut-off parameters	- the resource is reported for Razafy at a 6% TGC cut-off grade and a 5% TGC cut-off grade for Haja. These cutoff grades are in line with other reported Mineral Resources in East Africa - a Scoping Study has been completed on Razafy – refer to this study for cut-off grade calculations - no mining studies have been completed to date for Haja and cut-off grade calculations are not available
Mining factors or assumptions	based on the orientation, thickness and depth to which the graphitic lenses have been modeled and their estimated TGC, the potential mining method is considered to be open pit mining for both deposits
Metallurgical factors or assumptions	Razafy - metallurgical testwork program has been undertaken on drill core samples taken from a drill program completed in 2018. A total of 20 diamond drill holes were sampled, to create representative composite samples - sample preparation was undertaken by ALS Metallurgy in Perth WA, managed by BatteryLimits - sub samples (2x 1 kg) were issued to BGRIMM technology group for initial confirmatory flotation testwork. The samples were stage ground in a rod mill to 100% passing 1mm. The samples underwent rougher flotation and up to 6 stages of regrind polishing and 9 stages of cleaner flotation. multiple stages of cleaning (up to 6), with recleaning. The results indicated that high grade (94% TGC) concentrates can be produced at a recovery of 87% in open circuit Haja - in accordance with Clause 49 of the JORC code (2012), the product specifications and general product marketability were considered to support the Mineral Resource Estimate for Industrial Minerals - independent preliminary flotation testwork completed by ALS Global Laboratory (Perth, WA) on three composites are reported in previous announcements and shows that: 16% to 37% in overall weight of concentrate is of large or greater flake size category (+ 180 micron) at a concentrate grade above 97% TGC - overall concentrate grades range from 93.6% to 95.6% TGC
Environmental factors or assumptions	it is assumed that the processing of ore will have minimal environmental impact. This is based upon other graphite processing operations and basic assumptions on how graphite ore will be processed at Maniry
Bulk density	Razafy - the bulk density used to report the Razafy Mineral Resource is based on 19 measurements made by the water displacement method by the Intertek Perth laboratory - a 2.07t/m³ value was used for the oxide material and 2.17t/m³ for the fresh material Haja - the bulk density data used to report the resource comprises 56 measurements made by caliper method on competent fresh core drilled during the 2018 BEM's drilling campaign which cover the depth and extent of the deposit. The data has been averaged in 20m vertical slices, and corresponding values assigned to the block model range from 2.05 m/t³ in the weathered material to a maximum of 2.69 m/t³ at the lowest depth. The average density of the resource reported is 2.20m/t³
Classification	Razafy the two main lenses are continuous over the strike of the deposit. They can be followed on surface by mapping without interruption and are not disrupted by

Criteria	Commentary
	faulting - trenching completed during the early exploration stages, but not used in the resource estimate, confirm the location at surface of the thickness of the mineralisation estimated by the model - with a 100m drill section spacing and search ellipse of 140mx50mx12m, extrapolation of blocks is limited - all minor lenses, including the East Razafy prospect have been classified as Inferred material - for the East and West main lenses, the kriging slope of regression obtained for the TGC estimate was used to separate Indicated from Inferred resource at depth. Blocks with a slope of regression greater than 0.5 were classified as Indicated, the other blocks were classified as Inferred - the classification is based on a high degree of geological understanding of the mineralisation occurrence and spatial distribution, correlated by systematic drilling information with limited extrapolation - the Mineral Resource estimate appropriately reflects the view of the Competent Person Haja - the Haja lenses are continuous over the length of the deposit drilled - the mineralisation can be followed at surface from mapping and with the trenches available. Graphitic mineralisation is easily visually distinguished from the surrounding background rock from its colour and the presence of visible graphitic flakes - the trenches completed during the early exploration stages, but not used in the resource estimate, confirm the location at surface of the thickness of the mineralisation estimated by the model - at either strike end of the deposit, extrapolation has been limited by the wireframed envelopes which were extended 50m from the first and last drill hole fences - downdip, the mineralisation was extrapolated no more than 70m from the last drill hole intercepts on which the wireframes are based - all material inside the wireframe envelopes within the ranges detailed above has been classified as inferred material - the classification of the resource estimate appropriately reflects the view of the Competent Person
Audits or reviews	no audit nor review were undertaken for the Razafy and Haja Mineral Resource estimates
Discussion of relative accuracy/confidence	- the relative accuracy of the Mineral Resource estimates is reflected in the reporting of the resources as per the guidelines of the JORC Code 2012 edition - no other estimation method or geostatistical assessment has been performed - the Mineral Resource estimates of the Razafy and Haja deposits are global estimates of tonnes and grades - tonnages and grades above the nominated cut-off grades applied on TGC are provided in the body of the announcement - the contained graphite values were calculated by multiplying the TGC grades (%) by the estimated tonnage on a block by block basis - no production data is available to reconcile results with