

# MAJOR ADVANCES IN PRODUCTION OF ACTIVE ANODE MATERIAL

NGX has successfully produced Spheronised Purified Graphite (**SPG**) for Active Anode Material (**AAM**) samples for initial end-user qualification for use in lithium-ion batteries

 Commercial-scale shaping testwork achieved outstanding preliminary results: Sizing (D50) of 16.7μm, Tap Density of 0.985, and a BET specific surface area of 7.3m²/g at a yield of 43%

Purification performed in a large-scale pilot plant achieved **99.98% TGC**, significantly above the industry minimum of 99.95% TGC with a very favourable impurity profile, <u>a product of the inherent advantages of mining strongly weathered</u>, saprolite ore

Bulk-scale optimisation test work is on-going, to commercially demonstrate Malingunde's downstream process and define engineering parameters for developing a vertically integrated AAM operation

The purified and shaped material will now be coated to produce AAM samples for distribution to end users for pre-qualification

The Malingunde Project has the substantial advantage of four tonnes on hand of graphite concentrates from previous extensive upstream study work, ideal for the AAM program.

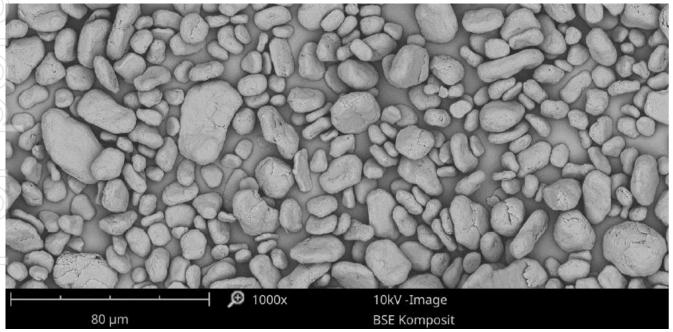


Figure 1: Microscope image of NGX's Spherised Purified Graphite



NGX Limited (**NGX** or **the Company**) is pleased to announce major advancements in the production of Active Anode Material (**AAM**) as part of the Company's lithium-ion battery pre-qualification program. The program is designed for the pre-qualification of AAM produced from natural graphite concentrates from the Malingunde Natural Graphite Project (**Project**), the Company's pre-development project in Malawi, southern Africa.

The pre-qualification program focuses on developing and assessing AAM production technologies across the three principal processes for producing Coated Purified Spheronised Graphite (**CPSG**): shaping, purification, and coating.

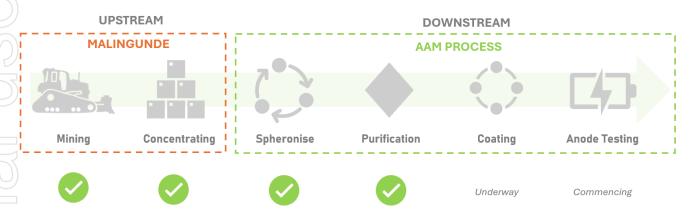


Figure 2: Flowsheet of the major steps in the AAM production process

#### NGX's Executive Director, Matt Syme, commented:

The objective of NGX is to maximise the value of Malingunde and our other graphite projects in Malawi, by capitalising on the considerable purity, environmental and cost benefits of saprolite (clay) based ore to produce Active Anode Material for lithium-ion batteries.

As demonstrated in the Malingunde Project Pre-feasibility Study, mining of saprolite ore has significant environmental and economic advantages due to its high quality, large flake graphite being hosted in weathered, soft, free-dig material. The weathering process also substantially reduces the sulphur content of Malingunde ore, one of the main critical AAM contaminants. The current AAM pre-qualification program aims to build on these natural advantages by developing a process which optimises these benefits, and the initial commercial scale testwork results strongly validate this approach.

NGX is fortunate to already have the required volume of concentrates on hand, providing the opportunity to undertake this commercial scale program quickly and cost effectively. The end point for the current AAM program is to validate and quantify the natural advantages of Malingunde concentrates and to produce AAM samples for distribution to end users for pre-qualification for lithium-ion batteries."

#### For further information, please contact:

**Matt Syme** 

Executive Director Tel: +61 8 9322 6322



#### **OVERVIEW**

The production of AAM samples at a bulk scale for distribution to major end-users for use in the rapidly expanding lithium-ion sector is the first significant step in qualifying Malingunde's graphite concentrate as an anode material.

As part of an AAM pre-qualification program, NGX has identified and is collaborating with technology partners to fast-track development and meet projected global demand for active anode materials. The Company plans to reduce technical risk and enhance go-to-market efficiencies by focusing on bulk-scale processes within commercial production settings to evaluate commercial vendors.

NGX can fast-track AAM production cost-effectively due to the availability of over four tonnes of high-quality Malingunde graphite concentrate already produced by the project's previous owners, Sovereign Metals Limited (**Sovereign**) (ASX:SVM, AIM:SVML). In addition, Sovereign's previous AAM work provided a baseline understanding and assisted in the scoping and design parameters for the program.

The program is focused on leveraging Malingunde's known superior graphite concentrate characteristics, which result from its inherent advantage of being hosted in soft, free-dig material. This results in significant cost savings and environmental benefits.

#### **TESTWORK OUTCOMES**

#### SHAPING

Over 300kg of Malingunde concentrate was provided to a global supplier of shaping equipment to test the concentrate commercially. The shaping was performed in 30kg batches under various operating conditions as part of a first-pass optimisation process.

NGX met industry benchmarks for spherical graphite from these initial batches, achieving a D50 of 16.7 microns, a 0.985 tap density and a BET-specific surface area of 7.3m²/g at a 43% yield. Further improvements are expected from ongoing optimisation work.

#### PURIFICATION

NGX engaged a leading global company with a patented technology to purify graphite. NGX targeted the proprietary purification technology as it significantly reduces chemical and water consumption compared to conventional commercial processes dominated and controlled by China.

The Malingunde graphite concentrate achieved 99.98% to 99.99% purity, significantly above the industry minimum of 99.95% for use in lithium-ion batteries. Moreover, critical impurity levels were substantially lower than the industry standards mandated for natural flake anode materials employed in lithium-ion battery manufacturing, as illustrated in Table 1.



Element	Benchmark (ppm)	NGX (ppm)	
Sulfur	≤15	9.2	
Iron	≤30	12.9	
Silicon	≤30	5.2	

Table 1: Benchmark specifications for minimum impurities for Natural Graphite Anode material Assays: ICP Source: Chinese Standard (Spherical Graphite GB/T 38887-2010)



Figure 3: Purity of Feed and Product Sample by Loss-on Ignition

#### COATING

The spheronised purified material will now be coated and produced into AAM for electrochemical testing to evaluate initial efficiency and AAM capacity for lithium-ion storage. This will be followed by distribution to major end-users.

#### **NEXT STEPS**

The program's key objectives are to produce AAM samples for pre-qualification and facilitate discussions with end-users, including OEMs and major battery makers. It will also assist the Company in identifying and collaborating with technology partners to fast-track development and define future downstream strategy.

At the successful completion of the program, NGX expects to be well positioned to fast-track downstream feasibility studies targeting tonne-scale production of AAM, which will drive offtake, sale arrangements, and the potential for strategic participation.



#### MALINGUNDE NATURAL GRAPHITE PROJECT

NGX took ownership of Malingunde via a demerger agreement with Sovereign Metals Limited (**Sovereign**) in 2023 and in January 2024 formally became the registered holder of the Project upon the issue of a new Retention Licence (**RL**).

Malingunde is a premium quality, low-cost flake graphite project with substantial environmental advantages due to its high-grade mineralisation hosted in soft, free-dig saprolite.

This recent purification test work and impurity analysis validated the anticipated low impurity profile of the Malingunde concentrate due to the mineralisation hosted in weathered saprolite. This differentiates it from hard-rock peers, which commonly have more difficult-to-remove impurity minerals such as pyrite and pyrrhotite.

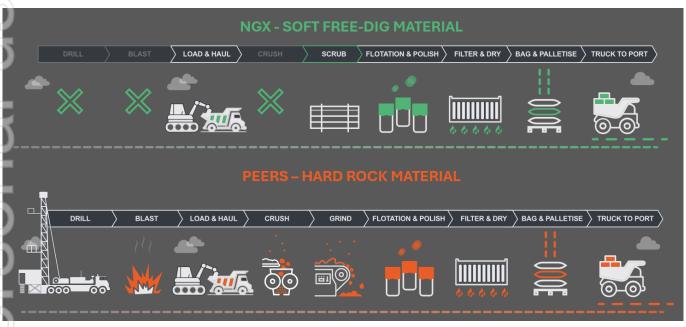


Figure 4: Graphite processing flowchart outlining the advantages of Malingunde's soft, free-dig material

Under Sovereign's management, it ran a Pilot Plant program at SGS Lakefield, Canada, producing approximately four tonnes of Malingunde graphite concentrate. Sovereign conducted limited bulk-scale programs in the Pilot Plant, resulting in the approximate four tonnes of representative concentrate being transferred to NGX. The availability of significant quantities of concentrates allows NGX to initiate programs like this cost-effectively and efficiently.

<sup>&</sup>lt;sup>1</sup> Refer to Sovereign's ASX Announcement titled 'Graphite Marketing Ramps up on Completion of Pilot Plant' dated 20 September 2019.







Figure 5: Images of the Pilot Plant at SGS Lakefield.

As summarised in the Pre-feasibility Study (PFS) previously completed by Sovereign in 2018 and updated in NGX's replacement prospectus dated 12 April 2023 (Prospectus) (as part of the NGX listing process). The Project's advantages are principally due to the Malingunde deposit having a large weathered saprolite component, resulting in lower expected energy inputs for mining and processing.

Table 2: Malingunde Natural Graphite Project PFS - Key Project Metrics

able 2: Malingunde Natural Graphite Project PFS - Ke	ey Project Metrics	
ECONOMIC		
Development Capital	\$USm	50.1
Indirect & contingency	\$USm	20.3
Total Capital	\$USm	70.4
Sustaining Capital	\$USm	31.6
Mine Gate Operating	\$US/t conc.	319
Transport & Logistics	\$US/t conc.	77
Total Operating Costs (Average LoM)	\$US/t conc.	396
PHYSICAL		
Average annual plant throughput	tpa	600,000
Average annual concentrate production	tpa	52,000
LoM average feed grade	% TGC	9.5%
Mine life	Years	16
FINANCIAL		
NPV 10% (post-tax)	\$USm	119
IRR (post-tax)	%	31%
EBITDA (average LoM)	\$USm	40

For full details of the Pre-Feasibility Study see the NGX Prospectus dated 12 April 2023. LoM = Life of Mine.



#### **Competent Persons' Statements**

The information in this report that relates to Metallurgical Testwork Results (Malingunde Flotation Concentrate) is based on information compiled by Mr Oliver Peters, M.Sc., P.Eng., MBA, who is a Member of the Professional Engineers of Ontario (PEO), a 'Recognised Professional Organisation' (RPO) included in a list promulgated by the ASX from time to time. Mr Peters is a consultant of SGS Canada Inc. ("SGS"). SGS is engaged as a consultant by NGX Limited. Mr Peters 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'. Mr Peters consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Metallurgical Downstream Studies is based on information compiled by Dr Surinder Ghag, PhD., B. Eng, MBA, M.Sc., who is a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Dr Ghag is engaged as a consultant by NGX Limited. Dr Ghag 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'. Dr Ghag consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to Production Targets, Ore Reserves, Processing, Infrastructure and Capital and Operating Costs is extracted from the Company's Replacement Prospectus lodged with ASIC on 12 April 2023 and on the ASX announcement platform on 16 June 2023. This Replacement Prospectus is available to view on www.ngxlimited.com. NGX confirms that: a) it is not aware of any new information or data that materially affects the information included in the original announcement; b) all material assumptions and technical parameters underpinning the Production Target, and related forecast financial information derived from the Production Target included in the original announcement continue to apply and have not materially changed; and c) the form and context in which the relevant Competent Persons' findings are presented in this announcement have not been materially modified from the Replacement Prospectus.

#### Forward Looking Statement

This release may include forward-looking statements, which may be identified by words such as "expects", "anticipates", "believes", "projects", "plans", and similar expressions. These forward-looking statements are based on NGX's expectations and beliefs concerning future events. Forward looking statements are necessarily subject to risks, uncertainties and other factors, many of which are outside the control of NGX, which could cause actual results to differ materially from such statements. There can be no assurance that forward-looking statements will prove to be correct. NGX makes no undertaking to subsequently update or revise the forward-looking statements made in this release, to reflect the circumstances or events after the date of that release.

#### **Disclaimer**

In relation to the disclosure of visual information and descriptions, the Company cautions that images displayed are for general illustrative purposes only, and that the visuals displayed, visual methods and estimation of mineral abundance should not be a proxy for laboratory analysis, and that laboratory analysis would be required to determine grades. Visual information also potentially provides no information regarding impurities or deterious physical properties relevant to valuations.

This announcement has been authorised for release by the Company's Executive Director, Matt Syme.



### Appendix 1: JORC Code, 2012 Edition - Table 1

#### **SECTION 1 - SAMPLING TECHNIQUES AND DATA**

	Criteria	JORC Code explanation	Hand Auger Drilling Commentary	
	Sampling Techniques	Nature and quality of sampling (e.g. 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.	Samples from the 65cm diameter spiral auger drilling were taken on 1 metre intervals. Each sample was manually quartered with each component of the sample separately bagged.	
		Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sample representivity was achieved through manual quartering.	
		Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.	Weathering and lithological information logged from the 1-metre auger sample was used to define the compositing intervals.	
	Drilling Techniques	Drill type (e.g. core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. 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).	A custom-made 65cm diameter spiral auger bit was connected to a standard aircore drilling rig, though no air or compressors were used or required for this style of drilling. The auger bit were cleaned between each metre of sampling to avoid contamination.	
	Drill Sample Recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Samples are assessed visually for recoveries. Overall, the recovery was very good.	
		Measures taken to maximise sample recovery and ensure representative nature of the samples.	Sovereign's trained geologists supervised the spiral auger drilling. No issues with recovery were identified.	
		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.	No bias related to preferential loss or gain of different materials has occurred.	
7.	Logging	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.	All individual 1-metre auger intervals are geologically logged, recording relevant data to a set template using company codes. A small representative sample was collected for each 1m interval and placed in appropriately labelled chip tray for future reference.	
		Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging includes lithological features and estimates of basic mineralogy. Logging is generally qualitative.	
		The total length and percentage of the relevant intersection logged	100% of samples were geologically logged.	
	Sub- sampling	If core, whether cut or sawn and whether quarter, half or all core taken.	Not applicable – not core drilling	
	techniques and sample preparation	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Samples were manually coned and quartered to obtain representative subsamples.	
		For all sample types, the nature, quality and appropriateness of the sample preparation technique.	This method is considered appropriate for this style of bulk sample drilling.	
		Quality control procedures adopted for all sub- sampling stages to maximise representivity of samples.	Samples were manually coned and quartered to obtain representative subsamples.	



Criteria	JORC Code explanation	Hand Auger Drilling Commentary			
	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.	Duplicate samples were obtained and stored on site. The auger bit was cleaned between each metre of sampling to avoid contamination.			
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample size is considered appropriate for the material sampled and for the pilot plant			
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	<ul> <li>The plant was setup using the flowsheet shown in Figure 7.1 of the Annexure C of the Company's Replacement Prospectus lodged with ASIC on 12 April 2023 and on the ASX announcement platform on 16 June 2023.</li> <li>The metallurgical performance of the circuit was controlled with hourly grab assays and full circuit surveys approximately every 12 hours of operation.</li> <li>The plant was fed at a rate of approximately 200 kg/hr and treated a total of approximately 40 tonnes of raw ore.</li> <li>The pilot plant was operated as a fully integrated circuit treating as received ore to final graphite concentrate filter cake and combined tailings</li> <li>Since the ore yielded a high moisture content, compositing and feeding was done manually at a rate of 10 kg every 3 minutes</li> <li>The plant treated three different composites namely a life of mine (LOM), Year 1 +2, and a North composite</li> <li>Although feed grades and visual appearance of the ore was highly variable, the metallurgical response was consistent</li> <li>The pilot plant campaign confirmed the suitability of the flowsheet that was developed in two laboratory scale programs</li> <li>The pilot plant campaign produced a total concentrate mass of approximately 4.1 tonnes</li> </ul>			
	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.	,			
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicate, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Internal standards were used by SGS Lakefield. No interrogation has been undertaken on these standards in this case.			
Verification of sampling & assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant mineralisation intersections were verified by qualified, alternative company personnel.			
	The use of twinned holes.	The 8 spiral auger holes were all twins of existing air-core holes.			
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All data was collected initially on paper logging sheets and codified to the Company's templates. This data was hand entered to spreadsheets and validated by Company geologists. This data was then imported to a Microsoft Access Database then validated automatically and manually.			
	Discuss any adjustment to assay data.	No assay adjustment has occurred.			
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	A Trimble R2 Differential GPS was used to pick up the bulk of the hand auger collars containing significant mineralisation. A smaller number of samples were surveyed using a standard hand held GPS.  No downhole surveying of the spiral auger holes is completed. Given the vertice			
		nature and shallow depths of the auger holes drill hole deviation is not considered to significantly affect the downhole location of samples.			
	Specification of the grid system used.	WGS84 UTM Zone 36 South.			
	Quality and adequacy of topographic control.	DGPS pickups are considered adequate topographic control (metres above mean sea level).			
Data spacing &	Data spacing for reporting of Exploration Results.	The 8 bulk sample spiral auger holes were drilled in areas designed to represent the life of mine ore feed as identified in the PFS (pre-feasibility study)			
distribution	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.	Not applicable - no Mineral Resource or Ore Reserve estimations are covered by the drilling in this report.			



Cr	riteria	JORC Code explanation	Hand Auger Drilling Commentary
		Whether sample compositing has been applied.	Individual 1-metre spiral auger samples were composited into 3 bulk samples representative of life of mine ore feed.
of da relat geol	ntation ata in tion to logical cture	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known considering the deposit type	No bias attributable to orientation of sampling has been identified.
	ciui <del>e</del>	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.	No bias attributable to orientation of drilling has been identified.
Sam	•	The measures taken to ensure sample security	Samples were stored in secure storage from the time of drilling. The samples were sealed as soon as compositing was completed, and again securely stored awaiting shipment.
Audi	its or ews	The results of any audits or reviews of sampling techniques and data	It is considered by the Company that industry best practice methods have been employed at all stages of the exploration.

## SECTION 2 - REPORTING OF EXPLORATION RESULTS

Criteria	Explanation			Commentary		
Mineral tenement & land tenure status	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 environment settings.	The Malingunde Project is located on a Retention Licence (RL) under the Mines and Minerals Act (No 8. of 2019), held in the Company's wholly-owned, Malawi-registered subsidiary: RL0033.				
	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.	The tenements exist.	are in good standin	g and no known impe	diments to exp	loration or mining
Exploration done by other parties	Acknowledgement and appraisal of exploration by other parties.	No other partie	s were involved in e	xploration.		
Geology	Deposit type, geological setting and style of mineralisation	The graphite deposit type could be termed a weathered paragneiss. Graphite at Malingunde occurs in a mostly topographically flat area west of Malawi's capital known as the Lilongwe Plain where a deep tropical weathering profile is preserved. A typical profile from top to base is generally soil ("SOIL" 0-1m) ferruginous pedolith ("FERP", 1-4m), mottled zone ("MOTT", 4-7m), pallid saprolite ("PSAP", 7-9m), saprolite ("SAPL", 9-25m), saprock ("SAPR", 25-35m) and fresh rock ("FRESH" >35m).				
Drill hole information	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: easting and northings of the drill hole collar; elevation or RL (Reduced Levelelevation above sea level in metres of the drill hole collar); dip and azimuth of the hole; down hole length and interception depth; and hole length	Hole ID  MGSA001 MGSA002 MGSA003 MGSA004 MGSA005 MGSA006 MGSA006 MGSA007 MGSA008 All holes were	Easting 571575 571330 572775 570751 570610 570621 572575 570531 vertical. Grid system	Northing 8436200 8436399 8434999 8437000 8437000 8436900 8435110 8437097 is WGS 84, Zone 36	RL 1125 1129 1088 1132 1133 1135 1096 1132 South.	Depth  18.3 24 18 21 19 23 7 21
	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 explain why this is the case	No information has been excluded.				
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of highgrades) and cut-off grades are	No grade weighting or lower or upper cuts were used.				



Crite	eria Exp	olanation	Commentary
	usually Material stated.	and should be	
	grade results ar low grade resul used for such a stated and som	te intercepts rt lengths of high- nd longer lengths of ts, the procedure ggregation should be e typical examples of ons should be shown	Not applicable to these bulk metallurgical results.
	The assumption reporting of measure should be clear.	tal equivalent values	No metal equivalent values are used in this report.
Relation between mineral widths	important in the Exploration Res		It is considered that the mineralisation lies in laterally extensive, near surface, moderate to shallowly dipping flat bodies in areas where the entire weathering profile is preserved and not significantly eroded.
intercep	t If the geometry with respect to a	of the mineralisation the drill hole angle is re should be reported.	Not applicable to this near-surface style of mineralisation and drilling style.
	hole lengths are should be a clea	n and only the down e reported, there ar statement to this rn hole length, true n'.	Downhole widths approximate true widths, though all mineralisation currently remains open at depth.
Diagran	scales) and tab should be included iscovery being should include, plan view of the	os and sections (with ulations of intercepts ded for any significant reported. These but not be limited to a drill collar locations sectional views.	Refer to the Company's Replacement Prospectus lodged with ASIC on 12 April 2023 and on the ASX announcement platform on 16 June 2023
Balance reportin	g Exploration Res representative r and high-grades	nensive reporting of all sults is not practicable, reporting of both low is and/or widths should avoid misleading loration results.	Refer to the Company's Replacement Prospectus lodged with ASIC on 12 April 2023 and on the ASX announcement platform on 16 June 2023
Other substan explora data	ion and material, sl including (but n geological obse survey results; y results; bulk sai method of treat test results; bulk groundwater, ge	rvations; geophysical geochemical survey mples - size and ment; metallurgical k density, eotechnical and rock potential deleterious	No other substantive exploration data is available.
Further	further work (e.	scale of planned g. test for lateral epth extensions or o-out drilling).	Further work involves working with numerous potential off-take partners to understand their product specifications required.
	areas of possible including the mainterpretations a	ain geological and future drilling this information is not	Refer to the Company's Replacement Prospectus lodged with ASIC on 12 April 2023 and on the ASX announcement platform on 16 June 2023