

ASX: KNG kingslandminerals.com.au

12 June 2024

Outstanding Initial Metallurgical Results for Leliyn Graphite Project

Commercial concentrate grade achieved; As Australia's biggest graphite Resource, Leliyn is on track to be a generational provider for EV batteries

HIGHLIGHTS

- Significant de-risking achievement with Australia's largest graphite deposit producing commercial grade concentrate of +94% Total Graphitic Carbon (TGC) from initial metallurgical test-work.
- Fine flake concentrate produced; flotation optimisation studies continuing.
- In light of these exceptional results, tests will now be conducted to assess production of spherical graphite; this is a precursor for using Leliyn graphite to make battery anode material for Electric Vehicle batteries.
- The results show Leliyn is ideally positioned to meet US and European demand for graphite from non-Chinese sources; this demand has further increased as a result of the graphite export controls imposed by China in 2023.
- Initial discussions have commenced with strategic partners and end users to assess potential downstream processing and off-take.
- To support resource growth potential an updated Exploration Target (outside the current JORC 2012 Inferred Resource of 194.6Mt @ 7.3% TGC) is due in June 2024.
- Preliminary technical studies to commence evaluating base case production and economic metrics

Kingsland Minerals Ltd (Kingsland, ASX:KNG) is pleased to provide an update to metallurgical test-work on samples from the Leliyn Graphite Project in the Northern Territory. Flotation test-work has produced graphite concentrate grades greater than 94% Total Graphitic Content (TGC). A fine flake bulk concentrate product will be produced to undergo additional test-work to assess downstream processing options.

These results confirm that fine flake concentrate of a marketable grade can be produced, meaning Leliyn is very well placed to be a future supplier of graphite products to Asian markets and beyond.

Kingsland Minerals Managing Director, Richard Maddocks said:

"This is a significant de-risking milestone for the Company because it shows that Leliyn can produce a marketable graphite concentrate. Given these strong results we will now focus on two, linked, outcomes; the first is to produce cost efficient fine flake concentrate and transport this to Darwin, only 250 km away by road or rail and the second is to secure markets for processed and raw fine flake graphite products and establishing a downstream processing facility in Darwin. Leliyn is Australia's largest graphite deposit and, with metallurgical results producing a +94% TGC concentrate, it is well placed to play an important role in the supply of raw and processed graphite products."

Leliyn is Australia's largest graphite deposit. The Inferred Mineral Resource Estimate is shown in Table 1. Figure 1 compares Leliyn to other Australian graphite deposits.



Table 1: Leliyn Graphite Project Mineral Resource Estimate¹

Figure 1: Australian Graphite Deposits²

¹ Refer to KNG ASX announcement 'Australia's Largest Graphite Resource' released 13 March 2024

² Source data presented in Appendix 1 to this release

Composite Sample

A master composite (MC2) was selected from diamond drill holes that represent potential open pit mining material. Figure 2 shows the location of drill holes that were used to provide material to make up the master composite. Table 2 summarises the drill intervals that were sampled to construct the composite. Table 3 shows the assay summary of MC2.



Figure 2: Location of diamond drill holes sampled for master composite MC2

Hole	sample size	weight (kg)	From (m)	To (m)	TGC %	Sample	
LEDD_03	quarter core	6	19	22	11.3	LEL_01	
	quarter core	2	21	22	10.6		
	quarter core	2	31	32	12.3		
	quarter core	2	51	52	13.1		
LEDD_05	quarter core	4	25	27	13.2		
	quarter core	2	39	40	13.2		
	quarter core	2	47	48	11.5		
LEDD_08	half core	8	27	29	6.0	LEL_06	
	half core	4	31	32	6.5		
	half core	4	43	44	7.1		
	half core	4	53	54	6.7		
LEDD_10	half core	12	15	18	7.8	LEL_07	
	half core	12	36	39	13.7		

Table 2: Intervals selected for MC2

Element	Unit	Master Composite 2
Total Carbon	%	10.62
Total Graphitic Carbon	%	10.10
LOI-1000C	%	15.86
LOI-425	%	0.62
Fe	%	3.69
Total Sulphur	%	2.68
Sulphate	%	0.37
Sulphide	%	2.31

Table 3: Master Composite (MC2) Assay Summary

Three flotation tests have been conducted on master composite MC2, the optimum results for this test-work are presented in Table 4, the cumulative grade-recovery curves are summarised in Figure 3. The results of the sizing analysis conducted on the final concentrates from each test are presented in Figure 4. Work is continuing to optimise the flotation parameters aimed at improving the efficiency and effectiveness of the flowsheet by targeting a potential reduction in grinding and cleaning stages. GFT04 produced a concentrate grade of >94% but at a low recovery of <70%, tests GFT05 and GFT06 aimed to improve the recovery whilst maintaining saleable grade, both achieved a concentrate grade in excess of the targeted 94% with recoveries greater than 80%.

Table 4: Cumulative Results Summary

	Units	GFT04	GFT05	GFT06
Concentrate Grade	%TGC	94.63	94.21	94.13
Concentrate Recovery	%	67.60	80.42	80.59



Figure 3: TGC Grade Recovery Profiles



Figure 4: Concentrate Sizing Distribution

The master composite produced a fine flake concentrate, approximately 60-70% of the material measured finer than 20 microns in GFT04, GFT05 and GFT06.

A simplified flowsheet for the proposed development pathway for the Leliyn Graphite Project is shown in Figure 5. Kingsland is de-risking the Project ahead of committing to a feasibility study. The work completed to date has largely done this. Future work required includes additional metallurgical test-work to assess the viability of production of spherical graphite from Leliyn graphite concentrates and the production of other graphite products. The receipt of these results will provide confidence to progress to further, more detailed studies for the development and production of graphite products.



Figure 5: Leliyn proposed work-flow towards development

THIS ANNOUNCEMENT HAS BEEN AUTHORISED FOR RELEASE ON THE ASX BY THE COMPANY'S BOARD OF DIRECTORS

About Kingsland Minerals Ltd

Kingsland Minerals Ltd is an exploration company with assets in the Northern Territory and Western Australia. Kingsland's focus is exploring and developing the Leliyn Graphite Project in the Northern Territory. Leliyn is Australia's largest graphite deposit with an Inferred Mineral Resource of 194.6mt @ 7.3% Total Graphitic Carbon containing 14.2mt of graphite. In addition to Leliyn, Kingsland owns the Cleo Uranium Deposit in the Northern Territory. Kingsland drilled this out in 2022 and estimated an Inferred Mineral Resource containing 5.2 million pounds of U_3O_8 . The Lake Johnston Project in Western Australia has historic nickel drill intersections and is also prospective for lithium mineralisation. Kingsland has a portfolio of very prospective future energy mineral commodities..

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CAPITAL STRUCTURE

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Competent Persons Statement

BOARD OF DIRECTORS

Richard Maddocks: Managing Director Bruno Seneque: Director/Company Secretary, CFO Nicholas Revell: Executive Technical Director

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The information in this report that relates to Exploration Results is based on information compiled by Richard Maddocks, a Competent Person who is a Fellow of The Australasian Institute of Mining and Metallurgy. Richard Maddocks has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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'. Richard Maddocks consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. Richard Maddocks is a full time employee of Kingsland Minerals Ltd and holds securities in the company.

Information regarding the Mineral Resource Estimate for the Leliyn Graphite Deposit is extracted from the report 'Australia's Largest Graphite Resource' created on 13 March 2024. This report is available to view on www.kingslandminerals.com.au or on the ASX website www.asx.com.au under ticker code KNG. 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 and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement. The information in this Release that relates to metallurgical test work was managed by Independent Metallurgical Operations Pty Ltd (IMO) and is based on, and fairly represents, information and supporting documentation compiled and/or reviewed by Mr Peter Adamini BSc (Mineral Science and Chemistry) who is a member of The Australasian Institute of Mining and Metallurgy (AusIMM). Mr Adamini is a full-time employee of IMO who has been engaged by Kingsland Minerals Ltd to provide metallurgical consulting services. Mr Adamini consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Appendix 1: Australian Graphite Deposits Mineral Resource Estimates

					TOTAL MINERAL RESOURCE		Measured		Indicated			Inferred		1		
ASX Code	Company	Deposit	Country	ASX Source Date	Tonnes	Grade TGC%	Contained Graphite	Tonnes	Grade TGC%	Contained Graphite	Tonnes	Grade TGC%	Contained Graphite	Tonnes	Grade TGC%	Contained Graphite
KNG	Kingsland Minerals	Leliyn	Australia, NT	ASX announcement 13 March 2024	194,600,000	7.30	14,200,000							194,600,000	7.30	14,200,000
RNU	Renascor	Siviour	Australia, SA	ASX announcement 14 Sept 2023	123,600,000	6.9	8,500,000	16,900,000	8.60	1,400,000	56,200,000	6.70	3,800,000	50,500,000	6.50	3,300,000
IG6	International Graphite Ltd	Springdale	Australia, WA	ASX announcement 12 Sept 2023	49,300,000	6.43	3,168,300				11,500,000	7.50	862,500	37,800,000	6.10	2,305,800
NVX	Novonix Ltd	Mt Dromedary	Australia, QLD	ASX announcement 20 Oct 2016	14,300,000	13.33	1,905,700	1,000,000	12.90	129,000	8,500,000	13.90	1,181,500	4,800,000	12.40	595,200
GCM	Green Critical Minerals Ltd	McIntosh	Australia, WA	ASX announcement 18 November 2022	23,800,000	4.45	1,058,000				19,200,000	4.44	853,000	4,600,000	4.50	205,000
LEL	Lithium Energy Ltd	Bourke	Australia, QLD	LEL 2022 Annual Report	6,300,000	16.0	1,008,000							6,300,000	16.00	1,008,000
MRC	Mineral Commodities	Munglinup	Australia, WA	ASX announcement 28 Apr 2023	7,990,000	12.2	973,190				4,490,000	13.10	588,190	3,500,000	11.00	385,000
LML	Lincoln Minerals Ltd	Kookaburra	Australia, SA	ASX announcement 16 April 2024	12,840,000	7.57	971,980	1,000,000	11.77	117,700	4,860,000	8.80	427,598	6,980,000	6.11	426,682
ITM	Itech Minerals Ltd	Campoona	Australia, SA	ITM 2023 Annual Report	8,550,000	9.01	770,750	320,000	12.70	40,640	1,000,000	9.10	91,020	7,230,000	8.84	639,090
QGL	Quantum Graphite	Uley	Australia, SA	ASX announcement 14 March 2023	6,900,000	10.98	757,300	800,000	15.60	124,800	4,200,000	10.40	436,800	1,900,000	10.30	195,700
BUX	Buxton	Graphite Bull	Australia, WA	ASX announcement 12 October 2022	4,000,000	16.1	644,000							4,000,000	16.10	644,000
OAR	Oar Resources	Oakdale	Australia, SA	ASX announcement 2 Dec 2015	6,320,000	4.70	297,040				2,690,000	4.70	126,430	3,630,000	4.70	170,610

JORC Tables

Section 1: Sampling Techniques and Data – Leliyn Graphite Project

Criteria	JORC Code explanation	Commentary
Sampling techniques	 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. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. 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 (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. 	 RC drilling samples were collected as 1m intervals via a riffle splitter off the drill rig. Diamond core is cut in half. Holes LEDD_04 and LEDD_05 were sampled with quarter core as these holes are part of the government co-funding 'Resourcing the Territory' initiative and may eventually be retained by the NT Geological core storage facility Samples for thin section analysis were collected from half core about every 7-8m down the core hole. A small section of core about 10cm long was collected Metallurgical samples were collected from diamond drill holes. Half core and quarter core was bagged into representative samples of about 20kg weight. Three samples LEL_01,06 and 07 were submitted for the testwork in this release.
Drilling techniques	 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). 	 RC drilling techniques were used. Diamond drilling is HQ size A total of 53 RC holes for 5,400m and 11 core holes for 2,400m have been drilled
Drill sample recovery	 Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. 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. 	 RC drilling sample recoveries are considered to be high Core recoveries are generally at 100% except for fault zones and highly oxidised zones
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. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. 	All drilling was qualitatively geologically logged recording lithology, mineralisation colour, weathering and grain size.

Criteria	JORC Code explanation	Commentary				
Sub-sampling techniques and sample preparation	 If core, whether cut or sawn and whether quarter, half or all core taken. 	 Sample preparation was conducted at North Australian Laboratories in Disc Conclusion 				
	 If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. 	 Pine Creek Samples were delivered to North Australian Laboratories at Pine Creek for analysis 				
	 For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. 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. Whether sample sizes are appropriate to the grain size of the material being sampled. 	 Samples are dried at 120 C for a minimum of four hours [or over-night if samples are excessively wet]. Sample prep is jaw crushing whole sample through a Boyd double toggle jaw crusher to a nominal 2mm particle size, splitting 400 gram through a jones riffle splitter and fine pulverising to 75 micron through an LM2 pulveriser. A barren washed creek sand as a barren flush is pulverised after every sample Total Graphitic Carbon is analysed with a weak acid digestion (HCl diluted to a 50% solution with demineralised water) followed by a 420°C roast and then final analysis in a CS analyser A suite of multi-elements was also assaved using a 4-acid digest 				
		 A sub-sample of 9kg was taken from each of the three metallurgical samples (LEL-01, 06, 07) and combined into a single master 				
		 composite (MC2) after being crushed to P₁₀₀ 3.35mm. A sub-sample of the master composite MC2 was then pulverised to 100% passing 212 microns 				
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. 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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established. 	 Internal QAQC by the laboratory indicate no sampling or bias issues. The assay technique is considered appropriate for the style of mineralisation and results in a total analysis of graphitic carbon. Standards, blanks and field duplicates are submitted as part of the drilling program A 2 kg charge of MC2 was ground to P95-100 212 µm for a sighter test under flotation conditions 2kg rougher-cleaner flotation tests, inclusive of rougher, cleaning and regrind stages were conducted, these tests were conducted sequentially in order to optimise the flotation conditions 				
Verification of sampling and assaying	 The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. 	 Assays have been verified by company geologists. Some diamond core holes have been drilled as twins to RC holes 				
Location of data points	 Discuss any adjustment to assay data. Accuracy and quality of surveys used to 	Drill holes were initially surveyed				
	locate drill holes (collar and down-hole	with a hand held GPS with +/- 5m				

Criteria	JORC Code explanation	Commentary
	 surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control. 	 accuracy. After drilling Cross Solutions of Darwin surveyed the collar location with DGPS to close accuracy The project areas lies at the boundary between MGA zones 52 and 53 so GPS co-ordinates are sometimes reported in these different grids depending where drill holes lie. The default grid to use in computer software to enable all holes to be plotted on the same grid co-ordinates will be MGAZ52
Data spacing and distribution	 Data spacing for reporting of Exploration Results. 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. Whether sample compositing has been applied. 	 Drill spacing is designed on 200m to 300m spacing with about 30m-50m spacing along drill lines. Some lines to the west of the project have been drilled at 50m spacing to assess shorter range variability in geology and grade The density of drilling is considered appropriate for the estimation of Inferred Mineral Resources
Orientation of data in relation to geological structure	 Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. 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. 	Drilling is generally perpendicular to the strike direction of then graphitic schists.
Sample security	• The measures taken to ensure sample security.	 Samples are taken to the assay lab in Pine Creek by Kingsland personnel.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	 No audits or reviews of sampling techniques have been undertaken.

Section 2: Reporting of Leliyn Graphite Project Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and 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 environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area. 	The Leliyn Graphite Project is located on tenements EL 31960 and EL 32152. These tenements are 100% owned by Kingsland Minerals Ltd. There are no known encumbrances to conducting exploration on these tenements.
Exploration done by other parties	 Acknowledgment and appraisal of exploration by other parties. 	There has been an extensive history of exploration for uranium and copper over the past 40 years. There has however been only limited work done focussed on graphite. Thundelarra Exploration (now Ora Gold Ltd) sampled some holes in 2012 for graphite at their Hatrick

Criteria	JORC Code explanation	Commentary
Geology	Deposit type, geological setting and at the of	copper prospect and Cleo uranium prospect. These samples indicated the presence of significant grade and thickness of graphite mineralisation measured as total graphitic carbon (TGC). In 2017 one diamond drill hole TALD001 was drilled into the graphitic schist and sampled for TGC. Significant grades and widths of graphite mineralisation were encountered. Samples from TALD001 were submitted to Pathfinder Exploration Pty Ltd for thin section petrographical analysis.
Geology	Deposit type, geological setting and style of mineralisation.	 Carbonaceous sediments of the Masson Formation have been contact metamorphosed by the Cullen Granites. This has metamorphosed carbon to graphite and converted shales to schists . This contact extends for about 20 km within Kingsland's tenement package.
Drill hole information	 A summary of all information material to the under-standing of the exploration results including a tabulation of the following information for all Material drill holes: easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length 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. 	 Drilling information is included in this announcement RC and core holes are surveyed downhole with a single shot camera. It is apparent that magnetic minerals, likely pyrrhotite, do interfere with azimuth readings. Obviously erroneous readings are disregarded Deeper diamond core holes are surveyed with a gyro tool to eliminate in impact of magnetic readings
Data aggregation methods	 In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. 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. The assumptions used for any reporting of metal equivalent values should be clearly stated. 	 Assays are reported as weighted average intersections. Intervals have been reported at a cutoff grade of 2% TGC with a maximum of 4m of internal dilution.
Relationship between mineralisation widths and intercept lengths	 These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known'). 	• Drilling has been perpendicular to the strike direction. The true width of mineralisation will vary but is generally expected to be from 70% to 80% of the reported down-hole widths.

Criteria	JORC Code explanation	Commentary
Diagrams	 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. 	 Relevant diagrams have been included within the main body of text.
Balanced Reporting	 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. Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced avoiding misleading reporting of Exploration Results. 	 The competent person deems the reporting of these drill results to be balanced.
Other substantive exploration data	 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. 	 RC and diamond drilling will progress at Leliyn, ultimately aimed at the estimation of a Mineral Resource. Diamond drill samples will be used for metallurgical test work to determine flotation characteristics and the suitability of Leliyn graphite for battery end uses. There is no other substantive data to report. Exploration at Leliyn is at an early stage with only limited historical exploration data relevant to graphite mineralisation.
Further work	 The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large- scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. 	Diamond drill samples will be used for metallurgical test work to determine flotation characteristics and the suitability of Leliyn graphite for battery end uses.