### **ASX ANNOUNCEMENT**

6 October 2023



# VIKING COMMENCES MRE UPDATE FOR THE CANEGRASS BATTERY MINERALS PROJECT

- Viking Mines has appointed consultants MEC Mining to undertake an updated JORC Mineral Resource Estimate (MRE) on the Canegrass Battery Minerals Project.
- Updated MREs will be completed for the Fold Nose Deposit, Kinks Deposit and a highly anticipated <u>maiden MRE for the Kinks South Target Area</u>.
- Significant results from the ~7,500m drill programme returned consistent thick highgrade intervals of Vanadium Pentoxide ( $V_2O_5$ ) at all MRE areas, including
  - Fold Nose Deposit¹ VCRC0027:42m at 0.74% V₂O₅ (>0.5%) from 79m, inc;

17m at 0.80%  $V_2O_5$  (>0.8%) from 83m &

8m at 0.99%  $V_2O_5$  (>0.8%) from 108m

Kinks Deposit<sup>2</sup> - VCRC0021: 40m at 0.75% V<sub>2</sub>O<sub>5</sub> (>0.5%) from 202m inc;

27m at 0.83% V<sub>2</sub>O<sub>5</sub> (>0.5%) from 203m

Kinks South Target³ - VCRC0011: 38m at 0.76% V₂O₅ (>0.5%) from 114m, inc;

15m at 0.95% V<sub>2</sub>O<sub>5</sub> (>0.8%) from 118m &

7m at 0.98% V<sub>2</sub>O<sub>5</sub> (>0.8%) from 145m

15m at  $0.72\% V_2O_5$  (>0.5%) from 160m, inc;

10m at 0.92% V<sub>2</sub>O<sub>5</sub> (>0.8%) from 165m

- The Kinks South target does not form part of the current inferred JORC (2012) MRE of 79Mt at 0.64% V<sub>2</sub>O<sub>5</sub><sup>4</sup>, presenting a substantial opportunity to grow the Mineral Resource base, specifically targeting a high-grade component >30Mt >0.9% V<sub>2</sub>O<sub>5</sub>.
- The Fold Nose Deposit will be extended to surface in the North, South and West from the current MRE limits as proven by the recent drilling campaign.
- At the Kinks Deposit, drilling has delineated a high-grade component substantially higher that the current Kinks MRE average grade of 0.57% V₂O₅ and extended mineralisation to surface, both of which are expected to substantially improve the quality of the MRE.
- The MRE updated is anticipated to be completed within the December Quarter.

**Viking Mines Limited (ASX: VKA)** ("**Viking**" or "**the Company**") is pleased to announce that it has appointed globally recognised independent consultants MEC Mining (MEC) to complete an updated JORC (2012) Mineral Resource Estimate (MRE) for the Canegrass Battery Mineral Project ("**the Project**" or "**Canegrass**"), located in the Murchison region of Western Australia.

The Company recently completed an extensive drilling program totalling ~7,500m, that systematically tested eight target areas focussing on extending and growing the already substantial MRE<sup>4</sup> of 79Mt at  $0.64\%~V_2O_5$  estimated for the Fold Nose and Kinks Deposit (Figure 1).

 $<sup>\</sup>frac{1}{2} \text{Viking Mines (ASX:VKA) ASX Announcement 4 September 2023 - Viking Drills Massive Vanadium Zone with 42m at 0.75\% V}_{2}O_{5}$ 

 $<sup>^2</sup>$  Viking Mines (ASX:VKA) ASX Announcement 24 August 2023 - Viking Hits High-Grade at Kinks - 40m at 0.75%  $\rm V_2O_5$ 

<sup>&</sup>lt;sup>3</sup> Viking Mines (ASX:VKA) ASX Announcement 21 August 2023: Viking Discovers Extensive Vanadium System at Kinks South

<sup>&</sup>lt;sup>4</sup> Viking Mines (ASX:VKA) ASX Announcement 30 November 2022: Viking to Farm into Substantial Battery Minerals Resource



Significantly, the Company intersected thick high-grade zones of mineralisation at the Kinks South Target, which presents the opportunity to undertake a maiden MRE for Kinks South, contributing to the overall Canegrass Project MRE.

#### Viking Mines' Managing Director & CEO Julian Woodcock said:

"We are extremely pleased to have engaged MEC Mining to complete the updated MRE for the Canegrass Project, which is tracking on schedule to be released in the December Quarter.

"The high-grade results received from our ~7,500m drill programme reaffirm our belief that there is significant potential to define a high-grade component at the Project.

"The inclusion of the Kinks South Target will deliver additional mineralisation to the Global MRE inventory, and crucially is expected to provide high-grade material based on the grades observed in the drilling.

"Combining this with the growth anticipated at Fold Nose and the delineation of a high-grade zone at Kinks, I am excited by the prospects of delivering a high-grade subset of the MRE towards our target of >30Mt >0.9%  $V_2O_5$ .

"I look forward to updating the market with the results later this year."

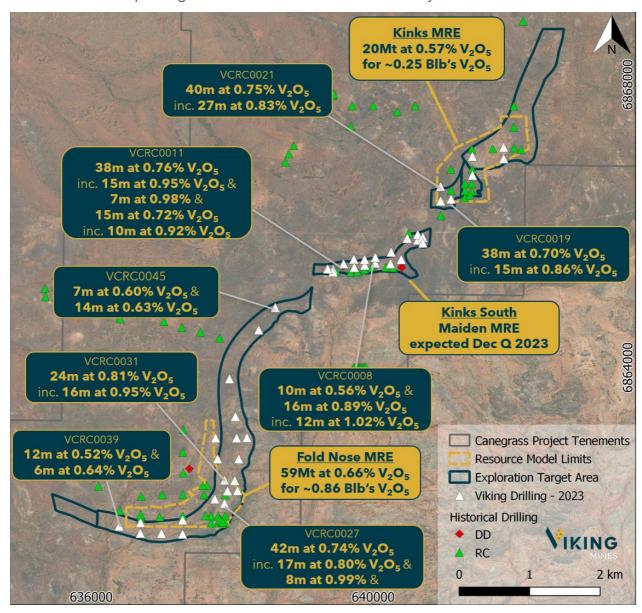


Figure 1: Map of the Canegrass Project area showing the location of the current Mineral Resources at Fold Nose & Kinks and the location of the Kinks South target. Note the strike length of the Kinks South target at 1.5km.<sup>1,2,3 & 4</sup>



#### **FOLD NOSE DEPOSIT**

Seven holes for 1,200m were drilled to test zones within the deposit to increase the drilling density and confidence in the historical drilling results.<sup>5</sup>

Significant thick zones of mineralisation have been intersected in multiple holes drilled, confirming the presence of substantial vanadium mineralisation, with the MRE extents to be increased substantially (Figure 2 - note MRE update limits outside the current MRE extent orange dash line).

Several historical holes completed after the MRE calculated in 2017 will now be included in the MRE and have the potential to further improve the resource (Figure 2 - orange callouts).

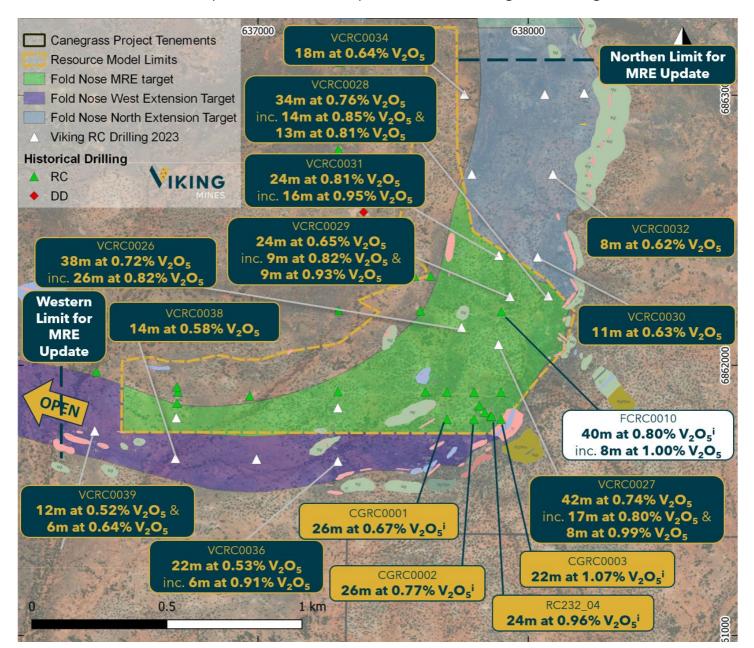


Figure 2: Map of the Fold Nose Deposit showing  $V_2O_5$  assay results from Vikings 2023 drilling programmes. Intercepts are reported above a 0.5%  $V_2O_5$  cut-off, with included intercepts (where reported) >0.8%  $V_2O_5$  cut-off. Note historical drillhole results which have not yet been incorporated into the MRE for the Fold Nose deposit (orange callouts) and results currently informing the MRE (white callouts).<sup>5</sup>

 $<sup>^5</sup>$  Viking Mines (ASX:VKA) ASX Announcement 4 September 2023: Viking Drills Massive Vanadium Zone with 42m at 0.74% V $_2O_5$ 



#### **KINKS DEPOSIT**

Seven holes were drilled at the Kinks Deposit for 1,099m<sup>6</sup> to test for extensions and identify higher grade zones.

Results received within the West Block (Figure 3) have confirmed the historical thick and high-grade intercepts which were identified in drilling <u>completed after</u> the last MRE which was reported in 2017 (Figure 3 - orange callouts).

All drillholes highlighted in the West Block are substantially above the current MRE average grade of  $0.57\%~V_2O_5$ , with results in multiple holes regularly exceeding  $0.7\%~V_2O_5$  (above a  $0.5\%~cut~off)^6$ .

Further, drilling and mapping has confined that the mineralisation will extend to surface from the current model, which has mineralisation restricted to~120m depth in the location of FCRC0029 (Figure 3)<sup>6</sup>.

The inclusion of all the additional drilling completed since 2017 and the higher-grade intercepts compared to the average resource grade, combined with the extension of the model to surface gives the company confidence that a significant improvement in the average grade of the Kinks MRE could be expected in the West Block.

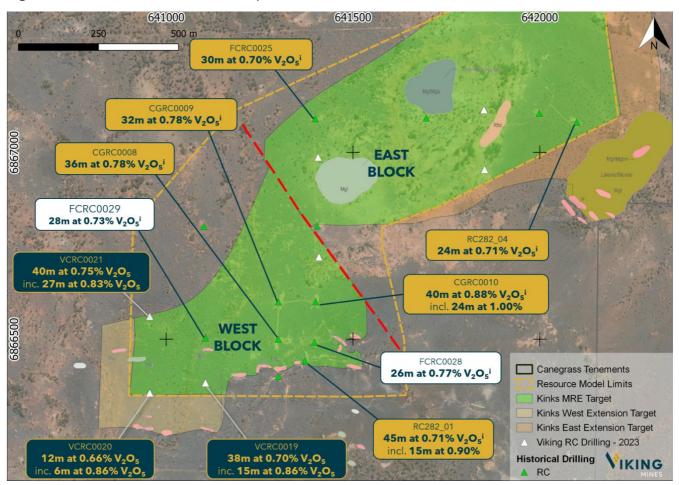


Figure 3: Map of the Kinks Deposit and the Kinks West Extension ETE target area showing V<sub>2</sub>O<sub>5</sub> assay results from Vikings 2023 drilling programmes. Intercepts are reported above a 0.5% V<sub>2</sub>O<sub>5</sub> cut-off, with included intercepts (where reported) >0.8% V<sub>2</sub>O<sub>5</sub> cut-off. Note historical drillhole results which have not yet been incorporated into the MRE for the Kinks deposit (orange callouts) and results currently informing the MRE (white callouts).<sup>6</sup>

<sup>6</sup> Viking Mines (ASX:VKA) ASX Announcement 24 August 2023: Viking Hits High-Grade at Kinks with 40m at 0.75% V₂O5



#### KINKS SOUTH TARGET AREA

17 holes for 2,730m (including a 60m tail on VCRC0005) were completed, testing >1.5km strike of the mineralised horizon identified through outcrop mapping and geophysics.

Substantial thick zones of vanadium mineralisation were intersected (Figure 4), presenting the opportunity to undertake a maiden MRE at Kinks South which will contribute to the overall Canegrass Mineral Resource Estimate.<sup>7</sup>

High grade intercepts >1.0%  $V_2O_5$  have been intersected in multiple holes along the full 1.5km strike length tested and remaining open to the West. Mineralisation occurs from surface and dips to the north, with thick and shallowly dipping zone identified at the eastern end around historical drillhole CGD01 (28m at 0.90%  $V_2O_5$ ).<sup>7</sup>

The Company identifies Kinks South as an area which is expected to deliver substantial additional mineral inventory to the Canegrass Project and is expected to contribute towards the Company target of **30Mt >0.9% V\_2O\_5** as a sub-set of the Global MRE.

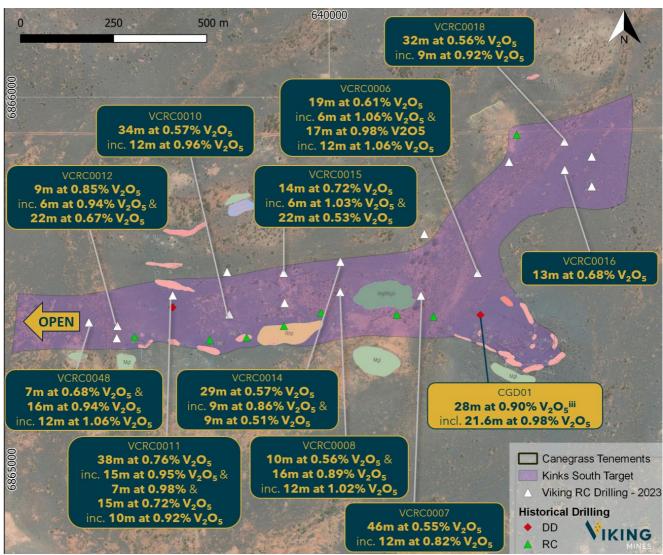


Figure 4: Map of the Kinks South target area showing  $V_2O_5$  assay results from Vikings 2023 drilling programmes. Intercepts are reported above a  $0.5\%~V_2O_5$  cut-off, with included intercepts (where reported) >0.8%  $V_2O_5$  cut-off. Composite intercepts have been derived for zones>6m width, reporting above minimum cut-off grade and a maximum of 6m consecutive internal waste zones. Intervals reported are downhole lengths and the true widths are not known.<sup>7</sup>

<sup>&</sup>lt;sup>7</sup> Viking Mines (ASX:VKA) 21 August 2023: Viking Discovers Extensive Vanadium System at Kinks South



#### **MINERAL RESORUCE ESTIMATE**

The MRE being undertaken by MEC Mining will produce three individual models, one for each of the target areas of Fold Nose, Kinks and Kinks South.

Ore body models of mineralisation will be completed using the data collected from drilling to effectively domain the geology and provide robust zones for estimation of mineral content.

Viking has identified the opportunity to improve the quality of the MRE over the 2017 model due to improved knowledge of high-grade domains which previously had been overly diluted due to the inclusion of significant zones of low-grade material and internal waste.

Separating the high-grade zones will improve the estimate and provide a clearer understanding of the distribution of these zones which can be assessed in the future to determine their economic potential.

Each model will have estimates completed for the following components:

Economic Minerals							Other					
$V_{2}O_{5}$	Fe	TiO <sub>2</sub>	Cu	Ni	Со	SiO <sub>2</sub>	$Al_2O_3$	LOI	Density			

On completion, the model will be assessed at various cut-off grades to determine the spatial distribution of the minerals of interest. This will identify areas of priority focus for follow up activity to delineate a high-grade component of the Global MRE which could form the basis of a Scoping Study to assess the economic potential of the Deposit.

#### **NEXT STEPS**

- Primary focus on completion of the MRE for the project, with anticipated delivery in the December quarter.
- Quotes being sourced for second stage metallurgical testwork to produce a vanadium pentoxide flake.

#### **END**

This announcement has been authorised for release by the Board of the Company.

Julian Woodcock Managing Director and CEO

**Viking Mines Limited** 

For further information, please contact: **Viking Mines Limited**Sarah Wilson - Company Secretary
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#### **CANEGRASS BATTERY MINERALS PROJECT**

The Canegrass Battery Minerals Project is located in the Murchison region, 620km north-east of Perth, Western Australia. It is accessed via sealed roads from the nearby township of Mt Magnet to within 22km of the existing Resources. The Project benefits from a large undeveloped Inferred Vanadium Resource hosted in vanadiferous titanomagnetite (VTM) Mineralisation as part of the Windimurra Layered Igneous Complex.

The Project benefits from  $\sim 95 \text{km}^2$  of exploration tenements with very limited follow up exploration targeting the growth potential of the vanadium pentoxide ( $V_2O_5$ ) Resources in the +10 years since the Resource was first calculated. Multiple drill ready targets are present which have the potential to significantly add to the already large Resource base, with high grade intercepts presenting an opportunity to substantially increase the average grade.

#### **JORC (2012) MINERAL RESOURCE**

The Canegrass Mineral Resource has been calculated across two separate areas called the Fold Nose and Kinks deposits, each with eight and four separate mineralised domains modelled respectively. The Resource has subsequently been reported above a cut-off grade of 0.5%  $V_2O_5$  and above the 210 RL (equivalent to a maximum depth of ~250m) (refer to ASX Announcement on 30 November 2022).

Canegrass Project Vanadium Mineral Resource estimate,  $0.5\% V_2O_5$  cut-off grade, >210m RL (due to the effects of rounding, the total may not represent the sum of all components).

Deposit	JORC Classification	Tonnage (Mt)	V <sub>2</sub> O <sub>5</sub> %	Fe %	TiO₂ %	Al <sub>2</sub> O <sub>3</sub> %	P %	SiO <sub>2</sub> %	LOI %
Fold Nose	Inferred	59	0.66	30.5	6.5	11.9	0.006	22.9	2.9
Kinks	Inferred	20	0.57	27.4	5.5	13.0	0.009	25.9	3.1
TOTAL		79	0.64	29.7	6.0	12.2	0.007	23.6	3.0

#### **VIKING MINES FARM-IN AGREEMENT**

Viking, via its wholly owned subsidiary, Viking Critical Minerals Pty Ltd, commenced with a Farm-In arrangement with Flinders Mines Ltd (ASX:FMS) on 28 November 2022 to acquire an equity interest in the Canegrass Battery Minerals Project. Through the terms of the Farm-In, Viking can acquire up to 99% of the Project through completion of 4 stages via a combination of exploration expenditure of \$4M and staged payments totalling \$1.25M over a maximum period of 54 months. If Viking complete the Farm-In to 99% equity interest, Flinders may offer to sell to Viking the remaining 1% of the Project for future production and milestone related payments totalling \$850,000. If Flinders do not offer to sell within a prescribed timeframe their right lapses, they must offer Viking the right (but not the obligation) to buy the remaining 1% for the same terms. The Project has a legacy 2% Net Smelter Royalty over the project from when Flinders Mines acquired it from Maximus Resources in 2009.



#### **VANADIUM REDOX FLOW BATTERIES - GREEN ENERGY FUTURE**

Viking Mines recognise the significant importance of Vanadium in decarbonisation through the growth of the Vanadium Redox Flow Battery ("**VRFB's**") sector.

VRFB's are a developing market as an alternate solution to lithium-ion ("**Li-ion**") in specific large energy storage applications. Guidehouse Insights Market Intelligence White Paper published in 2Q 2022 forecasts the VRFB sector to grow >900% by 2031 through the installation of large, fixed storage facilities (Figure 6).

## Annual Installed VRFB Utility-Scale and Commercial and Industrial Deployment Revenue by Region, All Application Segments, World Markets: 2022-2031

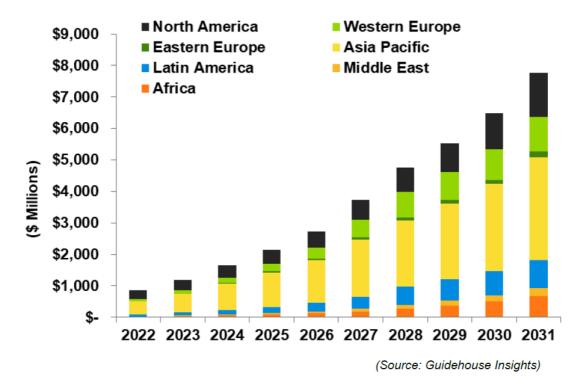


Figure 5; Forecast growth of the VRFB Sector through to 2031 (source – Guidehouse Insights)

The reason for this forecast growth is that VRFB's have unique qualities and advantages over Li-ion in the large energy storage sector to complement renewable energy sources to store the energy produced. They are durable, maintain a long lifespan with near unlimited charge/discharge cycles, have low operating costs, safe operation (no fire risk) and have a low environmental impact in both manufacturing and recycling. The Vanadium electrolyte used in these batteries is fully recyclable at the end of the battery's life.

Importantly, and unlike Li-ion, the battery storage capacity is only limited by the size of the electrolyte storage tanks. This means that with a VRFB installation, increasing energy storage capacity is only a matter of adding in additional electrolyte (via the installation of additional electrolyte storage tanks) without needing to expand the core system components. Increasing the energy storage directly reduces the levelized cost per kWh over the installation's lifetime. This is not an option with Li-ion batteries.

It is for these reasons that VRFB's are an ideal fit for many storage applications requiring longer duration discharge and more than 20 years of operation with minimal maintenance.

i) Guidehouse Insights White Paper Vanadium redox Flow Batteries Identifying Market Opportunities and Enablers Published 2Q 2022 https://vanitec.org/images/uploads/Guidehouse\_Insights-Vanadium\_Redox\_Flow\_Batteries.pdf



#### **Forward-Looking Statements**

This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Viking Mines Limited's planned exploration programme and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should," and similar expressions are forward-looking statements. Although Viking Mines Limited believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.

#### **Competent Persons Statement - Exploration Results**

Information in this release that relates to Exploration Results is based on information compiled by Mr Julian Woodcock, who is a Member and of the Australian Institute of Mining and Metallurgy (MAusIMM(CP) - 305446). Mr Woodcock is a full-time employee of Viking Mines Ltd. Mr Woodcock has sufficient experience which 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'. Mr Woodcock consents to the disclosure of the information in this report in the form and context in which it appears.

#### **Competent Persons Statement - Mineral Resources**

The information in this report that relates to Mineral Resources is based on, and fairly reflects, information compiled by Mr Aaron Meakin, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Meakin is a consultant to Red Hawk Mining Ltd and Viking Mines Ltd, employed by CSA Global Pty Ltd, independent mining industry consultants. Mr Meakin has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources, and Ore Reserves (JORC Code). The Company is not aware of any new information or data that materially affects the information included in the original market announcements and 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 announcements on 30 November 2022.