

A responsible critical minerals developer of choice in Quebec, Canada

> A partner of excellence in North America

for a shared *climate success story* 



MINERAL EXPLORATION PROCESSES CERTIFIED FOR RESPONSIBLE ENVIRONMENT AND SOCIAL BEST PRACTICES. UL.COM/EL UL 2723

TSXV: LMR OTC: LMRMD Frankfurt: DH8C

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### Land Acknowledgement

The land/projects where we operate are located within the traditional land of the Algonquin Anishnaabeg and Cree Eeyou Istchee Peoples.

Our vision is to embrace Indigenous people and Indigenous values within our projects to develop a sustainable approach on our path to critical minerals development, while honouring the lives, memories, and hopes of all seven generations close.

The La Loutre graphite project site is located within the Kitigan Zibi Anishinabeg (KZA) First Nation's territory. The KZA First Nation is part of the Algonquin Nation and the KZA traditional territory is situated within the Outaouais and Laurentides regions.

The Bourier lithium project site is located south-east of the Eeyou Istchee James Bay territory in Quebec, near Nemaska Lithium and Critical Elements.





### **OPPORTUNITY AND INVESTMENT HIGHLIGHTS**



### Lomiko: an ideal partner for investment

- Outstanding opportunity for a strategic investor to invest in Quebec, the USA Department of Defence and Canadian Federal government graphite opportunity
- Over C\$16m in non-dilutive and non-repayable award contributions achieved, setting Lomiko apart from all other Canadian critical mineral developers

#### **Current Opportunity**

 Activate and receive advance payments from both the Federal government and US DoD, and continue with the Quebec met grant by CRITM

#### Use of proceeds, net of working capital needs and fees/ legal expenses

- Complete met studies with Corem
- Focus on starting the 200t bulk sample permitting and planning and extraction
- Phase 2 met works



# Over CA\$16m concurrent Canadian and USA funding announced May 16

- ✓ These are non-dilutive non-repayable awards
- Recipient of a US\$8.35m (CA\$11.2m) R&D (Research & Development) grant from the United States of America Department of Defense ("DoD") and CA\$4.9m contribution from Natural Resources Canada

## Awards support a de-risked path of development with funding for more than 50% of project costs

- ✓ Announcements are part of the joint Canada-U.S. Energy Transformation Task Force
- ✓ The DoD grant, called a Technology Investment Agreement ("TIA") supports studies for La Loutre to complete pre-feasibility (PFS), baseline and metallurgical studies and definitive feasibility study (DFS)
- The Canadian Critical Mineral Research, Development and Demonstration (CMRDD2) program administered by Natural Resources Canada is to pilot the integrated graphite upgrading process to for cSPG anode grade product



## Lomiko advantage: Ranked as the seventh biggest deposit worldwide by Mining.COM

	Property	Country	Owner	Development Status	M+I Resources (mt)	Grade (%)	Contained Graphite (mt)
1.	Balama/Nicanda Hill	Mozambique	Triton Minerals Ltd	Stalled (previously Feasibility)	369	11.3	41.7
2.	Sarytogan	Kazakhstan	Sarytogan Graphite Limited	Prefeasibility	126	28.8	36.3
3.	Lac Gueret (Uatnan)	Canada	Mason Resources Inc	PEA	66	17.19	11.3
4.	Mahenge	Tanzania	Black Rock Mining Ltd	Permitting	116	8.02	9.3
5.	Siviour	Australia	Renascor Resources Limited	Permitting	73	7.14	5.2
6.	Epanko	Tanzania	EcoGraf Ltd	Permitting	63	7.6	4.8
7.	La Loutre	Canada	Lomiko Metals Inc	Prefeasibility	65	4.5	2.9
8.	Malingunde	Malawi	NGX Limited	Prefeasibility	37	7.37	2.7
9.	Balama Central	Mozambique	Tirupa Graphite plc	Permitting	27	10.24	2.7
10.	Bunyu	Tanzania	Volt Resources	Feasibility	40	5.64	2.3





# Current R&D: environmentally responsible air classification

#### Air classification testing:

- Separate graphite-containing material using air
- Graphite air classification involves a four-step process that will separate the waste material from the graphite without the use of water or chemicals to offer a processing alternative that will help reduce water use to minimal amounts and reduce environmental impacts.
- The rock is prepared by crushing and grinding to ¾ passing -20 mesh (0.85mm) and subject to 10 deck screening
- Similar to the classic flotation process, ore is subjected to rougher air classification where the graphite is pulled from the waste by air suction
- Rougher concentrate and middlings are then subject to further cleaning and grinding steps to purify the graphite and increase carbon content while removing waste
- Cleaning air classifiers are used after the rougher to improve product quality
- Depending on the particle size and air flow the flakes are classified in the different bins



### Lomiko collaborations





vecteur de transformation métallique



### Femina Collective

Innovation en traitement de minerais Innovation in mineral processing



International







LSTM



National Research Council Canada Conseil national de recherches Canada



PRODUCT CERTIFIED FOR REDUCED ENVIRONMENTAL IMPACT. VIEW SPECIFIC ATTRIBUTES EVALUATED: UL.COM/EL UL XXXX





### CURRENT TRENDS



### Rho Motion EV sales

US Election 2024





### **Rho Motion EV sales**

US Election 2024

motion DWEBINAR

### **Bipartisan Infrastructure Law**





### Rho Motion EV \sales

- Globally, the market continues to show strong growth, up 21% compared to the same period (Jan-Jul) in 2023.
- Battery Electric Vehicles (BEVs) represent
  65% and Plug-in hybrids (PHEVs) represent
  35% of sales in 2024 so far.
- The market share of PHEVs has grown by 5 percentage points compared to the same period in 2023 where PHEVs represented almost a third of total EV sales.
- Global: 8.4 million in Jan-Jul 2024, +21% yoy
- China: 5.0 million, +31%
- EU & EFTA & UK: 1.7 million, 0%
- USA & Canada: 1.0 million, +10%
- Rest of World: 0.7 million, +31%



### La Loutre: PEA layout – great base to build on

#### Mine layout and costs – PEA

- Waste rock and tailings co-disposed
- Efficient site water management with no wet tailings
- Pits sequenced to maximize the returns starting from North – EV Pits to South – Battery Pits
- Stockpiles (low grade and ROM) for blending and Flotation Plant
- Mine truck & shovel operation
- Flotation Plant 4,000tpd
- Capex of C \$236M, AISC US \$ 406/t Cg cost



Source: NI 43-101 Technical Report and Preliminary Economic Assessment (July 2021)



### NPV scenario analysis: Positively leveraged to expected graphite price increases

- PEA used a graphite concentrate selling price of US \$916/t
- The current forecast selling price for +94%Cg is US \$1,070/t of graphite concentrate (source: Benchmark / Lone Star)
- Current public information by graphite producers indicates a basket selling price of over US \$1,500/t



Graphite Price (US\$/t)	Post-Tax NPV (8%)	Post-Tax IRR %	Payback (yrs.)
\$916	\$186M	21.5%	4.2
\$1,070	\$283M	27.8%	3.4
\$1,200	\$362M	33.0%	2.9
\$1,300	\$419M	36.7%	2.6
\$1,400	\$472M	40.1%	2.4
\$1,500	\$520M	43.4%	2.2

**Source :** NI 43-101 Technical Report and Preliminary Economic Assessment (July 2021) **(\$916, \$1,070, \$1,200, \$1,300, \$1,400 & \$1,500)** 



- Updating the Lomiko PEA for US \$1,500/t Graphite selling price improves on current solid project returns.
- The La Loutre project combines high-grade coventrate with compelling economics of a post-tax IRR of 43%, posttax NPV of \$520M, and a NPV/Capex multiple of 2.2x



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### **GRANTS & FUNDING**



### Summary of CMRDD program administered by Natural Resources Canada

- ✓ Award: CA\$4.9m
- The CMRDD program administered by Natural Resources Canada is to pilot the integrated graphite upgrading process with a 200 mt bulk sample over 3 years for a total contribution agreement of CA\$6.6m where Lomiko will contribute 25% of this funding
- It supports four tasks: these tasks complement Phase 2 of the DoD grant
- All work and equipment will be in a Canadian lab setting

Task 1: Crushing, grinding and flotation of La Loutre graphite

- Task 2: Chemical and thermal purification of graphite concentrate
- Task 3: Micronization and spheriodization of the flotation concentrate
- Task 4: Carbon coating of purified graphite



### La Loutre development

A de-risked path to continued development of this strategic critical mineral asset

 The U.S. DoD has provided a grant for <u>50%</u> of the study costs and NRCan is contributing <u>75%</u> of the pilot program costs, significantly de-risking the project.





### La Loutre total project costs and use of funds

• An investment of \$5M to \$10M will accelerate the completion of a PFS and environmental and community impact studies

Project Deliverables – DoD Grant	Costs
PFS – Pre-feasibility Study	\$6.1M
Environmental /Baseline Studies/ Project Registration/ EIS	\$4.1M
Met. Battery / Bulk Testing	\$2.7M
DFS – Definitive Feasibility Study	\$9.8M
D.o.D TIA Grant	(\$11.35M)
Net Project Cost	\$11.35M

Project Deliverables – NRCan Contribution	Costs	
200Mt bulk sample and graphite upgrading process	\$6.6M	
NRCan Contribution	(\$4.9M)	
Net Project Cost	\$1.7M	



aouvernement

#### MINERAUX CRITIQUES ET STRATEGIQUES AU QUEBEC Version du 13 février 2020



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## Lomiko is poised to be the responsible developer of choice in the South of Quebec



Source: NI 43-101 Technical Report and Preliminary Economic Assessment (July 2021)



### La Loutre graphite development milestones

• Permitting and capital dependent – 100,000tpa flake concentrate within 5 years





### La Loutre Graphite Project



### SGS Characterization Study, 2023 67% fines content in the flotation concentrate

- La Loutre flake distribution is ~67% fines suitable for anode market **37% growth year over year!**
- -100 mesh is used most commonly in SPG (spherical graphite) as a precursor for battery production



00 mesh	Size (Mesh)	Size (µm)	Mass (%)	C(t) (%)	C(t) Distribution (%)
<del>-</del>	32	500	0.4	98.3	0.4
of	48	300	5.6	98.7	5.5
3%	80	180	18.1	98.3	17.9
ლ _	100	150	9.5	98.8	9.4
	150	106	17.0	99.4	17.1
	200	75	18.6	99.6	18.7
	325	45	18.2	99.5	18.2
	-325	-45	12.7	99.1	12.7
	Final Concentrate		100	99.1	100

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Size Fraction Analysis of Combined Concentrate

of LCT – PFS Level MetPro Report Feb 2023



### La Loutre metallurgical program 99.99% purified graphite content

- ✓ Completed PFS level met testing and optimized flow sheet
- Completed value-added testing with ProGraphite micronization, spheroidization, and purification:
- Proved that La Loutre material is suitable for battery applications -Spherical Graphite production yielded excellent results
- ✓ Achieving excellent 99.99%Cg SPG and flake purity
- ✓ All physical characterization tests produced excellent results
- ✓ Achieved continuous and reliable production of micronized products with homogenous properties.
- ✓ Low specific energy input to convert the La Loutre flotation concentrate to micronized material.





- NRC Study Phase 1- half-cell coin battery testing demonstrated that La Loutre material is suitable for battery applications – half-coin battery testing demonstrating higher reversible capacity compared to commercially available graphite, surpassing results achieved at Polaris at 358mA/h at an averages 367 mAh/g in the NRC Study
- High Temperature (HT) purification in a HT furnace. The sample was heated up to 2700 C in argon gas for 5-10 minutes, followed by a natural cooling of the furnace for several hours, kept under Argon gas. The HT purification by NRC was able to bring almost all elements below the 10 ppm target.
- Phase 2 of the NRC Study would build 5-layer batteries and test them for 500 cycles over 9 months.



Figure - Lomiko graphite Half-cell batteries produced and tested by Polaris



### La Loutre half-cell battery testing surpassed commercial graphite results - Polaris

- Demonstrated that La Loutre material is suitable for battery applications – half-coin battery testing with Polaris Battery Labs, LLC, USA, is demonstrating higher reversible capacity compared to commercially available graphite, averaging 358mA/h
- ✓ Figure up Lomiko graphite Half-cell batteries produced and tested by Polaris (SPG16 top, SPG20 bottom row)
- ✓ Figure bottom SPG20 sample from La Loutre has superior charging capacity compared to commercial graphite in the market today in North America.







### La Loutre single layer pouch full-cell battery testing met and surpassed commercial graphite results

- Demonstrated that La Loutre material is suitable for battery applications – single layer pouch full cell battery testing completed with Polaris Battery Labs, LLC, USA,
- The single-layer pouch cells constructed with La Loutre graphite anode and standard cathode material: cSPG16 and cSPG20 samples from La Loutre reveal strong performance of the La Loutre cSPG with better discharging capacity compared to commercial graphite material in North America today.
- ✓ Both samples were put through a brief life cycle analysis for 25 cycles at C/2 and performed well.
- Figure top Lomiko graphite Single layer pouch batteries produced and tested by Polaris
- Figure bottom SPG20 sample from La Loutre has better charging/discharging capacity compared to commercial graphite in the market today in North America.





### Next Steps – Metallurgical and Battery Trials

- CRITM Quebec studies
  - Lab testing to set bulk sample processing conditions
  - Process 1,100kg of the material to generate flotation flakes
  - NRC- 2000-cycle battery tests
- Polaris
  - Further 500-cycle battery testing
- Air Classification Testing
  - Upgrade crushed ore to +97%Cg without the use of water
  - Use the pressured air to separate waste and graphite
- Graphene testing
  - Produce graphene for use in paints, additives and specialty batteries



### For more information <u>info@lomiko.com</u> Follow us @lomikometals on socials

