



Graphite and lithium properties in Quebec for a North American climate success story

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Land Acknowledgement

We would like to begin by acknowledging that 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.





Meet the Lomiko Team



We thank you for the opportunity to present a shared vision for a climate success story

- Vince Osbourne, CFO and Corporate Secretary
- Gordana Slepcev, COO
- Belinda Labatte, CEO and Director
- Bradley Barr, Environmental and Communication Coordinator

Diverse leadership

50% of directors are women and 2 of 3 Executive Officers are female



Today's Agenda

- 1. The Lomiko vision in critical minerals
 - Discussion of the consultation documents
- 2. The importance of graphite worldwide and reducing GHG emissions at Lomiko
- 3. La Loutre operations overview
 - Phases of development
 - Preliminary Economic Assessment layout
 - Updates and plans for 2024 and up to 2025
 - Powerline
 - Road Access
 - Local employment and benefits to the region
- 4. Environment, noise and tailings
- 5. Community engagement
- 6. Q&A



Our vision for the region

To become a Centre of Graphite Excellence where people can learn about graphite and renewable energy, local communities, and Indigenous contributions to our collective project.

We want to create opportunities for the region where local communities are engaged and invested in studies and choices and see direct benefits and risk reduction:

- Input into environmental and other impact studies
- Input into the closure plan and site use following the site restoration
- Benefits for the region: improved infrastructure, long term employment, stimulate local economy

Why? North America is 100% import dependent on graphite and this is our chance to be owners of our energy security



Lomiko vision and call to action 92

Dec. 2022; Lomiko Metals acknowledges it is operating on traditional KZ land

We would like to move forward "walking beside" the Nation and involving First Nations communites as much as possible in the process. Also, there are limitations in our own internal decision-making as we have more studies to undertake before a production decision is made

There will be more opportunities to add to the discussion as the project evolves. Partnership, long-term value creation, direct benefits and nature-based solutions are key to our vision

Call to Action #92(i): Commit to meaningful consultation, building respectful relationships, and obtaining the free, prior, and informed consent of Indigenous peoples before proceeding with economic development projects



Lomiko partners support the vision



vecteur de transformation métallique

COCE Innovation en traitement de minerais

Innovation in mineral processing



International



SOUEM



Canada

National Research Council Canada

Conseil national de recherches Canada



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





The importance of graphite worldwide and reducing GHG emissions at Lomiko



5 key facts why graphite is needed now

- Energy security: It is a critical mineral There is no graphite production in North America (Lac des lles is running out of graphite) – it all goes to China and comes out of China and this region has a high-quality product that is imperative for our energy security
- 2. Quebec competitive advantage: The Grenville graphite belt in Quebec presents the best opportunity for graphite development in all of North America
- 3. Global shortage: The world needs a lot of graphite! The shortage is starting this year
- 4. Timing is critical, and it is now: A wave of new planned electric vehicle battery plants will increase North America's battery manufacturing capacity from 55 GWh/year in 2021 to nearly 1,000 GWh/year by 2030
- 5. No substitute: Graphite is 95% of the anode composition of an EV battery There is no commercial substitute available that is climate-friendly



Regional exploration Most prospective graphite belt in North America

- Lomiko has acquired 268 claims in total on 6 early-stage projects covering 15,639 hectares in the Laurentian region of Quebec and within KZA territory
- This allows for responsible development of the region – On average, less than one in 100 projects get developed.
- Not all claims will progress to development, and if they are developed, it will be done responsibly with one plant location
- Plant location has not been finalized





Substituting ICE vehicles with EV vehicles reduces lifecycle carbon by 1/3

Lifecyle GHG emissions of Electric vehicle (EV)¹ vs Internal combustion engine (ICE) (t CO₂e/vehicle lifetime)





EVs powered by batteries with Lomiko's graphite can reduce carbon emissions by ~616 kt CO2e per year

Benchmark of avoided emissions (kt CO₂e/year)





Mine **100,000 tonnes per year of natural graphite** starting in 2027



70-125 kg of graphite is required make an EV battery²



Lomiko Metal's graphite provides enough graphite to make 315,000 EV every year³, these EVs can replace sales of ICE's



The avoided emissions from driving EVs is the **equivalent of shutting down two natural gas power plants**



The graphite from La Loutre is planned to be 10X less carbon intensive than current mines

Lomiko Scope 1 and 2 intensity benchmarked to other graphite miners (Kt CO₂e/ 100,000 t graphite)





Source: IEA

Lomiko to be a carbon neutral producer



Scope 1 and Scope 2 emissions are the

Carbon negative targets will require sizable

16



Lomiko's La Loutre project development timeline



A critical minerals project timeline of studies – many studies needed before production decision

ENVIRONMENTAL BASELINE DATA COLLECTION, PERMITTING, MONITORING AND RECLAMATION



2.2. PFS (Pre-feasibility Study) Detailed Engineering study that uses only Measured and Indicated Resources

2.3. BFS (Bankable Feasibility Study) and Detailed Engineering study that further clarifies the costs of the project and processing details Lomikoplans for progressive reclamation



La Loutre graphite development milestones

- Permitting and capital dependent
- At every stage: community engagement
- All phases of development can be reviewed with a local advisory group





La Loutre and Carmin plan for 2024

We may look to do further work as follows:

- La Loutre: geotechnical drilling to better understand the mine plan for La Loutre, including further baseline data collection (we started to collect water samples and analyze for water quality at Lac Dore)
- Carmin: fieldwork, including drilling to better understand the resource
- Other graphite claims: ongoing soil and surface sampling (field work)
- Environmental baseline studies
- Engineering studies for mine plan
- Review transformation opportunities from graphite concentrate to cSPG graphite for Evs
- Hydro Quebec studies

*All the future work is funding dependent and Lomiko actively engaged in investor relations and government grant processes for critical minerals





Key Facts of PEA

- Two known deposits currently being explored: EV Zone and Battery Zone
- Over \$130m in wages to the local community
- Over \$240m in taxes
- 15-year mine life producing 100,000tpy of graphite (21 million tonnes)

*could be up to 10% of demand in North America and could be longer mine life, meaning more job security and more cash flow to the economy

• Focused project footprint relative to claim size (15%)





La Loutre Road access – Possible alternatives

- Lomiko is exploring several options for possible road access (forestry roads) to avoid traffic through the town of Lac des Plages
- Currently, there are 4 options of forestry roads to consider as alternatives
- Lomiko is seeking local communities' input into outlining the option that is the least impactful to the residents
- Lomiko is discussing using electric trucks for concentrate haulage via the new access road





La Loutre Power Lines

 Lomiko has investigated options for possible powerlines access through preliminary consultations with Hydro-Quebec; expected use: 10MW for dedicated line





La Loutre: Carmin Update

Next Steps:

- Exploration field prospecting, including grab sampling to evaluate project merits
- Lomiko will apply established water protection measures (for example: sediment settling and containment)
- Lomiko commits to not exploring or developing close to the park boundaries
- The planned drilling is approximately 1-3 km away from cottages





La Loutre Metallurgical Program Update

R&D with partners as La Loutre graphite is a high purety high concentrate product amenable for anode transformation

- Testing underway on the flotation concentrate for batterygrade suitability, coating to produce cSPG (coated spherical graphite) for battery trials
- Process 1,000 kg rock sample to produce flotation concentrate
- Purify flotation concentrate on a bigger scale to confirm labscale testing

R&D led by Lomiko

- Finishing purification testing on SPG sample
- Battery trails with Polaris in the US

Develop relationships with potential partners and customers

- Technical Data Sheets developed
- In discussions with anode and car manufacturers for strategic investments



Det: SE 50 µm eld: 288.9 µm Name: V409LO 00006 Date(m/d/y): 05/10/23

GeoZentrum



Highlights of our Approach

- 1. We will abide by all government requirements for water buffer zones in the exploration and production phase and will consider feedback from a community advisory group
- We endorse all government processes for permitting of critical minerals projects–
 BAPE (Le Bureau d'Audiences Publiques sur l'Environnement (BAPE) or Office of Public Hearings on the Environment Public consultations Project)
- 3. No classic tailings: dry stack tailings is in the design with progressive reclamation
- 4. We will monitor the water quality during construction, project operation, and closure within claims and outside claims
- 5. The Company is ECOLOGO certified a responsible operator in Quebec



Key commitments made to community

- ✓ Vision for carbon neutral operation: Low carbon emission electric fleet, where possible
- ✓ Create road/site access that minimizes impact local Lac-des Plages residents
- Continuous water quality monitoring within the claim package and Lac Dore
- Continuous noise measurements in all phases of development with noise mitigation systems in place
- ✓ Fencing around the project perimeter to stop wildlife from entering the work areas
- ✓ Exploration buffer zone to park (at Carmin)
- ✓ Independent consultant reports for the community paid for by Lomiko
- $\checkmark~$ Pause blasting operations in the summer vacation season
- ✓ Early and direct engagement with KZ First Nations

All future commitments are subject to financing each stage of development



Environment, noise, tailings



Dry stacking of tailing: most environmentally friendly method of tailings deposition

• The most effective physical storage

Minimal surface disruption compared with classic storage facilities, with 85% more of the material being dry, and eliminates the risk of tailings dam rupture

• Improve structural stability of material storage

Dry stack tailings storage has been found to greatly improve the structural stability of the material storage near highly sensitive environmental areas

• Maximum recovery of recycled water

In the most arid regions of the world, dry stack tailings permit the recovery of the maximum amount of recycled water. This means we can have a closed-loop water management system

Recovery of residual process chemicals

Dry stack tailings also promote the recovery of residual process chemicals that can be recovered from recycled water.



Environmental work completed over the past two years

Environmental baseline studies completed:

- ✓ Full report available on our website: <u>https://lomiko.com/wp-</u> <u>content/uploads/2022/04/Early-Baseline-Studies-Report-09-03-2022.pdf</u>
- ✓ Geochemistry properties of the waste rock and low-grade ore
- ✓ Hydrology how surface water flows and changes over time
- ✓ Wetland and Hydric Environments characterization and ecology of wetlands
- ✓ Aquatic Species and Fish Habitat characterization of the watercourses and surveys of fish species inhabiting surface water
- ✓ Atmospheric air and noise monitoring
- ✓ Baseline studies carried out by Ausenco (formerly Hemmera)









Summary of Environmental Baseline Studies 2022

Key findings – Wildlife

- ✓ 51 species of birds observed and heard during spot surveys
- Two identified species at risk (Canada Warbler and Olive-sided Flycatcher)
- ✓ Fish community assessment conducted in the fall of 2022
- ✓ Electrofishing and minnow-catching
- ✓ Found no invasive fish species, sport fish, or fish species currently listed as threatened or vulnerable
- All fish caught are baitfish common to the Outaouais region and are all tolerant of warm waters
- ✓ White-tailed deer wintering habitat mapped out in September 2023. No overlap with La Loutre footprint



Deer wintering habitats

Summary of Environmental Baseline Studies 2022

Water Quality

- ✓ A total of eight (8) hydrometric stations are installed
- \checkmark A total of 11 water quality sampling stations
- Concentrations at all stations during the monitoring period were below criteria for the following parameters: alkalinity, chloride, fluoride, nitrate, ammonia nitrogen, total suspended solids, turbidity and total alkalinity
- ✓ Total Phosphorous and Total Alkalinity were the onl parameters detected above criteria (0.03mg/L and 1 mg/L, respectively): thought to be related to background conditions





Non-disruptive blasting, drilling and mining operations is possible

- Build a berm around its operation to minimize noise impacts
- Wildlife will be protected by designing environmental barriers and preventing access to the worksite, and noise will be monitored at the same time Lomiko will evaluate the noise levels and will plan to build a noise barrier around the open pits/roads to prevent noise pollution
- Design with its partners SoftDb and other engineering firms: noise reduction programs and installation on all equipment
- Run of the mining equipment to be carbon neutral/electric, which is significantly less noisy than standard diesel equipment
- Cooperations discussed with Lion Electric on use of the electric trucks for concentrate haulage
- Example: Malartic operation close to Val D'Or



2022 Local noise study

- Measurement completed from September 7 12, 2022, during drilling activity at Battery Zone which is the closest to Lac Dore
- Two noise monitoring stations were installed to identify sources of sound from exploratory infill drilling activities and to determine any effect at the nearby Lac-Doré cottager community. One at the drill site and one at Lac Dore, 1.26km apart.
- Model of noise meters used: Larson Davis 831C
- Hired SoftDB acoustics and vibrations experts -to analyze continuous data from noise monitoring devices

Locations of noise monitoring stations



Source: Lomiko & SoftDb



Local noise study

NI 98-01: establishes the methods and criteria used to assess the acceptability of noise emissions

- Standard developed by the Ministry of the Environment, the Fight against Climate Change, Wildlife and Parks
- We will be in full compliance with the Environmental Quality Act

Table below: Maximum sound level based on zoning according to NI 98-01

Zonage	Description	Nuit [dB(A)]	Jour [dB(A)]
I	Résidentiel	40 ou bruit résiduel	45 ou bruit résiduel
II	Logements multiples	45 ou bruit résiduel	50 ou bruit résiduel
III	Usages commerciaux	50 ou bruit résiduel	55 ou bruit résiduel
IV	Industriel	70 ou bruit résiduel	70 ou bruit résiduel
Période		19h à 7h	7h à 19 h

	Niveau	Impression ressentie		
,,,	140 dB	Seuil de douleur		
	130 dB			
	120 dB	Douloureux		
	110 dB	Insupportable		
	100 dB	Difficilement supportable		
	90 dB	Très bruyant		
	80 dB	Bruyant		
	70 dB			
	60 dB	Bruit courant		
	50 dB			
)1 -	40 dB	Faible		
	30 dB	Calme		
	20 dB	Très calme		
	10 dB	Silencieux		
el	0 dB	Inaudible		

 Table above:
 Subjective noise perception scale

 Source:
 SoftDB





Results of noise survey

Comparison of dBA levels between both stations



From the observations with noise instruments at the drill site and at the cottages, it is apparent that the spikes at the drill activities don't translate to spikes at noise levels at the cottages.



Observations and Conclusions

- For most of the measured periods, both day and night, the levels are well below the NI98-01 targets.
 This means that the background noise in the area is generally low during the period we were drilling.
- For most sound recordings at the residences, sound sources are identified to be human activities road traffic, electrical equipment, wildlife, and aircraft noise. The background noise is higher in the residential sector; it is possible to hear electrical noise (tonal hum).
- For most of the drill recordings, the sources are associated with wildlife or what seems to be trucking.





Commitments for future work

- Continuous noise monitoring during drilling activities
- Continuous sound recording to enable listening
- Develop a noise dispersion model that takes into account local topography
- Inclusion of a weather station in the noise meter to evaluate impacts of wind and temperature conditions



Example of noise model based on Cadna-A software



Community Engagement



Local communities to propose next steps

May include:

- Formation of an advisory committee for every stage of development: PFS studies, pilot plant, FS, construction, production, closure
- Input into project design, cultural and environmental integrity in Centre for Graphite Excellence
- Project design is preliminary, and there is flexibility in designing the project to minimize the impact on the project area

Lomiko has achieved UL ECOLOGO certification®

What is it?

- Ecologo (UL) is a certification specifically designed for mineral exploration. It contributes to the establishment of a social license within the socio-economic ecosystem of projects, in full transparency.

- It was created as an independent third-party certification, jointly implemented by UL and the QMEA (Quebec Mineral Exploration Association).

- Currently exists only for the province of Quebec and applies to contractors, subcontractors and service providers.

- Certification is performed by a UL professional, specialized in mining.
- Applies to Lomiko as an organization as well as its La Loutre project.





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



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





Layout (Preliminary)

- Waste rock and tailings co-disposed
 * dry stack tailings
- Efficient site water management with no wet tailings
- Pits sequenced to with progressive reclamation
- Seasonal operations contemplated
- Mine truck & shovel operation
- Flotation Plant 4,000tpd
- Capex of C \$236M



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



BAPE

- Le Bureau d'Audiences Publiques sur l'Environnement (BAPE)
- Public and impartial organization
- Their public consultations serve as a complement to the environmental analysis of projects carried out by the MELCCFP
- Public Hearings (4 months)
- The president of the BAPE forms a commission of inquiry composed of one or more commissioners
- Takes place in project's host community
- Multiple rounds of consultation





Canadian Mining Stats

- The mining industry is a major sector of Canada's economy
- Contributes \$125 billion to the national GDP and is responsible for 22 percent of Canada's total domestic exports.
- Employs 665,000 people directly and indirectly across the country
- Proportionally the largest private sector employer of Indigenous peoples in Canada and a major customer of Indigenous-owned businesses





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Source: Mining Association of Canada (MAC)