# Lomiko Metals' La Loutre Graphite Pre-Feasibility Level Flotation Optimization Studies Produce Consistent High-Grade Flotation Concentrates Grading up to 99.7% C(t)

written by Raj Shah | February 6, 2023

February 6, 2023 (Source) – **Lomiko Metals Inc.** (TSX.V: LMR) ("Lomiko Metals" or the "Company") is pleased to announce an update on the optimization studies of the concentrator flowsheet design and the development of graphite value-add processes, as detailed below.

Lomiko Metals completed a pre-feasibility ("PFS") level flotation flowsheet optimization program that culminated in a flowsheet for the Company's PFS for its La Loutre property. The samples submitted for metallurgical testing were selected by InnovExplo in Val-d'Or, Quebec. Three different types of composites were generated, mine plan, domain, and grade composites. The mine plan composites represented the first several years of expected mine operations and were blended in the appropriate ratio into a master composite containing material from the EV Zone. This master composite was used in the flowsheet optimization program and produced consistent high-grade flotation concentrates. The total weight of the samples was approximately 640kg.

The flowsheet optimization program was carried out by SGS Lakefield Inc. (SGS) using the above samples and the final

report was completed by Metpro Management Inc.

At the end of the optimization program, this master composite containing only material from the EV Zone was subjected to a locked-cycle flotation test ("LCT"). The LCT simulates the metallurgical performance of a continuous plant operation. The LCT produced a combined concentrate grade of 98.6% C(g) at a closed-circuit graphite recovery of 94.7%. Please refer to Table 1 for details.

The robustness of the flowsheet was verified in open-circuit tests with twelve variability composites, which represented different phases in the mine plan, domains, and head grades. The average concentrate grade of the 15 variability flotation tests, which included three repeat tests, was 97.9% C(t) with a low relative standard variation of 1.08%. Taking into account the standard deviation, the lowest value of 95.2% C(t) is considered an outlier. All other tests produced consistently high grades between 96.4% C(t) and 99.7% C(t) as shown in Table 2.

Belinda Labatte, CEO and Director stated: "We are very pleased to achieve a high purity of La Loutre's graphite flotation concentrate in the LCT testing which is indicative of the grades to be produced in the operational setting. It is very encouraging to see that the PFS level of metallurgical testing shows that Lomiko can achieve a purity of 98.6% C(g) while recovering 94.7% C(g) of the graphite using a master composite that represents the first several years of operations. The consistently high flotation concentrate grades that were achieved from head grades ranging from as low as 1.39% C(g) to as high as 9.86% C(g) demonstrate a high level of robustness of the proposed flow sheet."

*Table 1: Locked Cycle Mass Balance of EV Master Composite*

| Sample ID | Weight | Assays (%) | % Distr. |
|---|---|---|---|

| % | C(t) | C(t) | |
|---|---|---|---|
| **Combined Conc** | 6.01 | 98.6 | 94.7 |
| +80 mesh 2nd Clnr Conc | 2.07 | 98.2 | 32.5 |
| +80 mesh 1st Clnr Tails | 0.07 | 46.8 | 0.6 |
| -80 mesh 3rd Clnr Conc | 3.94 | 98.8 | 62.2 |
| -80 mesh 1st Clnr Tails | 0.24 | 7.22 | 0.3 |
| 2nd Clnr Tails | 2.16 | 1.40 | 0.5 |
| 1st Clnr Tails | 15.4 | 0.79 | 2.0 |
| Scav Tails | 76.2 | 0.17 | 2.1 |
| Combined Tailings | 94.1 | 0.36 | 4.9 |
| Head (calc) | 100 | 6.26 | 100.0 |

**Open-Circuit Tests**

A summary of pertinent results of the variability flotation program is presented in Table 2 including a basic statistical analysis.

The open-circuit graphite recovery displayed more variance with graphite recoveries between 78.0% and 92.6% with an average value of 87.2%. Open-circuit tests treat intermediate tailings streams as final tailings and, therefore, overstate losses that would be incurred during closed-circuit operation. In a commercial plant the circuit is closed and the intermediate tailings are cycled back to the previous flotation stage. This allows any graphite particles lost to the intermediate tailings to be recovered into the flotation concentrate. Hence, overall graphite recoveries are expected to increase noticeably during closed circuit operation as demonstrated by the LCT.

The robustness of the proposed flowsheet and conditions is further underlined by the fact that these very consistent metallurgical results were achieved for head grades ranging from

as low as 1.39% C(g) to as high as 10.3% C(g). This range of head grade variation frequently requires significant adjustments to the process conditions, which was not required for the La Loutre mineralization since all tests employed identical flotation conditions.

Repeat tests conducted on three composites displayed very low test-to-test variance with regards to final concentrate grade and open circuit recovery.

*Table 2: Variability Flotation Results*

| **Composite** | **Composite ID** | **Head Grade % C(g)** | **Concentrate Grade % C(t)** | **Recovery % C(g)** |
|---|---|---|---|---|
| Mine Plan Composite | MP_FLOT_EV2 | 9.37 | 98.1 | 92.6 |
| MP_FLOT_EV3 | 6.84 | 98.3 | 92.0 | |
| MP_FLOT_EV4 | 6.52 | 99.3 | 91.6 | |
| MP_FLOT_EV5 | 5.02 | 99.5 | 90.8 | |
| Domain Composite | DOM_FLOT_EV2 | 10.3 | 99.7 | 89.2 |
| DOM_FLOT_EV3 | 9.86 | 97.9 | 91.2 | |
| DOM_FLOT_BAT2 | 4.13 | 97.2 | 86.5 | |
| DOM_FLOT_EV3 | 9.91 | 97.7 | 90.3 | |
| DOM_FLOT_BAT2 | 4.10 | 97.6 | 86.6 | |
| Grade Composite | GRAD_FLOT_EV1 | 2.79 | 95.2 | 84.5 |
| GRAD_FLOT_EV2 | 1.39 | 97.9 | 81.0 | |
| GRAD_FLOT_EV3 | 4.29 | 96.9 | 85.6 | |

| | | | | |
|---|---|---|---|---|
| GRAD_FLOT_EV4 | 5.04 | 98.5 | 78.0 | |
| GRAD_FLOT_BAT1 | 5.17 | 96.4 | 84.6 | |
| GRAD_FLOT_BAT1 | 5.30 | 97.9 | 83.5 | |
| | | Average | 97.9 | 87.2 |
| | | Min | 95.2 | 78.0 |
| | | Max | 99.7 | 92.6 |
| | | StdDev | 1.17 | 4.38 |
| | | Rel. StdDev | 1.20 | 5.02 |

**LCT Size Fraction Analysis**

In the LCT test, the final concentrates of the EV master composite LCT were submitted for a size fraction analysis and the weighted combined concentrate grade and size distribution are presented in Table 3. A total of 24% of the concentrate mass reported to the +80 mesh size fractions at a grade of 98.6% C(t). Approximately 12.7% of the mass reported to the -325 mesh product at a very high grade of 99.0% C(t).

The EV zone is scheduled to be mined first and accounts for two-thirds of the graphite production as outlined in the July 2021 Preliminary Economic Assessment (“PEA”).

The high flotation concentrate grades facilitate different marketing or process options. The study indicates it may be possible to sell the high-grade concentrates into specialty markets that require a 98-99% C(t) concentrate grade.

*Table 3: EV Master Composite Flake Size Distribution*

| Flake Category | Size Fraction | Weight | Assays | Distribution |
|---|---|---|---|---|
| % | % C(t) | % C(t) | | |

| | | | | |
|---|---|---|---|---|
| Extra Large or Jumbo | +32 mesh | 0.4 | 98.3 | 0.4 |
| +48 mesh | 5.6 | 98.7 | 5.5 | |
| Large | +65 mesh | 10.6 | 98.3 | 10.5 |
| +80 mesh | 7.5 | 98.3 | 7.4 | |
| Medium | +100 mesh | 9.5 | 98.8 | 9.4 |
| Small | +150 mesh | 17.0 | 99.4 | 17.1 |
| +200 mesh | 18.6 | 99.6 | 18.7 | |
| Fine/Amorphous | +325 mesh | 18.2 | 99.5 | 18.2 |
| +400 mesh | 6.0 | 99.3 | 6.0 | |
| -400 mesh | 6.7 | 98.7 | 6.6 | |
| | Final Concentrate (SA) | 100.0 | 99.1 | 100.0 |

The reconciled combined concentrate grade of 99.1% C(t) is slightly higher than the direct concentrate grade of 98.6% C(t) for the LCT. The reasons for the small discrepancies are sampling and analytical measurement uncertainties, which are inherent with any assay method.

**Next Steps**

A 10.5 kg bulk flotation concentrate was generated during the PFS metallurgical program and has been dispatched to ProGraphite in Germany for micronization, spheroidization, and purification testing to produce spheroidized and purified graphite (SPG). Results of this value-add program are expected late Q1 or early Q2 2023.

Parallel purification work will be conducted by Corem in Quebec City, where Corem will further upgrade the SPG material by carbon coating into coated, spheroidized, and purified graphite (CSPG), which will then be evaluated in battery trials by

Polaris Battery Labs. Complete test results are expected in late Q2 or early Q3 2023. The Company continues to actively work with partners in Quebec for battery trials as a next step.

The Company's updated investor presentation and website can be found at www.lomiko.com.

**Qualified Persons**

Mr. Oliver Peters, a Principal Metallurgist with Metpro Management Inc., is a Qualified Person within the meaning of NI 43-101. Mr. Peters is satisfied that the analytical and testing procedures used are standard industry operating procedures and methodologies, and he has reviewed, approved and verified the technical information disclosed in this news release, including sampling, analytical and test data underlying the technical information.

**About Lomiko Metals Inc.**

The Company holds mineral interests in its La Loutre graphite development in southern Quebec. The La Loutre 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. Located 180 kilometres northwest of Montreal, the property consists of one large, continuous block with 76 mineral claims totalling 4,528 hectares (45.3 km2).

The property is underlain by rocks belonging to the Grenville Province of the Precambrian Canadian Shield. The Grenville was formed under conditions that were very favourable for the development of coarse-grained, flake-type graphite mineralization from organic-rich material during high-temperature metamorphism.

Lomiko Metals published a July 29, 2021 Preliminary Economic Estimate (PEA) which indicated the project had a 15-year mine life producing per year 100,000 tonnes of graphite concentrate at 95% Cg or a total of 1.5Mt of graphite concentrate. This report was prepared as National Instrument 43-101 Technical Report for Lomiko Metals Inc. by Ausenco Engineering Canada Inc., Hemmera Envirochem Inc., Moose Mountain Technical Services, and Metpro Management Inc., collectively the Report Authors.

On behalf of the Board,
Belinda Labatte
CEO and Director, Lomiko Metals Inc.

For more information on Lomiko Metals, review the website at www.lomiko.com

**Cautionary Note Regarding Forward-Looking Information**

This news release contains “forward-looking information” within the meaning of the applicable Canadian securities legislation that is based on expectations, estimates, projections and interpretations as at the date of this news release. The information in this news release about the Company; and any other information herein that is not a historical fact may be “forward-looking information” (“FLI”). All statements, other than statements of historical fact, are FLI and can be identified by the use of statements that include words such as “anticipates”, “plans”, “continues”, “estimates”, “expects”, “may”, “will”, “projects”, “predicts”, “proposes”, “potential”, “target”, “implement”, “scheduled”, “intends”, “could”, “might”, “should”, “believe” and similar words or expressions. FLI in this new release includes, but is not limited to: the Company’s objective to become a responsible supplier of critical minerals, exploration of the Company’s projects, including expected costs

of exploration and timing to achieve certain milestones, including timing for completion of exploration programs; the Company's ability to successfully fund, or remain fully funded for the implementation of its business strategy and for exploration of any of its projects (including from the capital markets); any anticipated impacts of COVID-19 on the Company's business objectives or projects, the Company's financial position or operations, and the expected timing of announcements in this regard. FLI involves known and unknown risks, assumptions and other factors that may cause actual results or performance to differ materially. This FLI reflects the Company's current views about future events, and while considered reasonable by the Company at this time, are inherently subject to significant uncertainties and contingencies. Accordingly, there can be no certainty that they will accurately reflect actual results. Assumptions upon which such FLI is based include, without limitation: current market for critical minerals; current technological trends; the business relationship between the Company and its business partners; ability to implement its business strategy and to fund, explore, advance and develop each of its projects, including results therefrom and timing thereof; the ability to operate in a safe and effective manner; uncertainties related to receiving and maintaining exploration, environmental and other permits or approvals in Quebec; any unforeseen impacts of COVID-19; impact of increasing competition in the mineral exploration business, including the Company's competitive position in the industry; general economic conditions, including in relation to currency controls and interest rate fluctuations.

The FLI contained in this news release are expressly qualified in their entirety by this cautionary statement, the "Forward-Looking Statements" section contained in the Company's most recent management's discussion and analysis (MD&A), which is

available on SEDAR at www.sedar.com, and on the investor presentation on its website. All FLI in this news release are made as of the date of this news release. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking information. The Company does not undertake to update or revise any such forward-looking statements or forward-looking information contained herein to reflect new events or circumstances, except as may be required by applicable securities laws.

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