



INITIAL FLOW SHEET OPTIMISATION TEST WORK COMPLETED ON THE EMPEROR CONCENTRATE FROM THE McINTOSH PROJECT

- Green Critical Minerals (GCM) is pleased to announce that ALS Metallurgy has completed the first stage of flow sheet optimisation test work program on graphitic ore sourced from the Emperor deposit at the McIntosh Graphite project (see announcement 28 February 2024).
- The test work program confirms the ability to upgrade the McIntosh ore to GCMs target product of 95% TGC concentrate grade with a conventional process flow sheet, with recoveries of >90%, and flake sizes aligning with the preferred starting flake size for battery anode materials.
- The test work program also confirms the amenability of the McIntosh ore to various comminution circuits from a recovery perspective, with a preference for attritioning as opposed to polishing from a concentrate grade perspective. These results confirm the flow sheet developed for the test work announced on 21 November 2023 is suitable to produce a saleable graphite concentrate.
- These results support the undertaking of further analysis and test work to systematically optimise each process variable in the flowsheet starting with the rougher flotation stage.

Green Critical Minerals Ltd ('GCM' or 'the Company') which holds earn-in rights for up to 80% of the McIntosh Graphite Project (see announcement on 15 June 2022) is pleased to announce the completion of the initial metallurgical optimisation test work program. This test work program used graphitic ore sourced from the Emperor Resource at the McIntosh Graphite Project, with all test work being conducted on material sourced from diamond core drilled by GCM in 2023.

FLOW SHEET OPTIMISATION TEST WORK

ALS Metallurgy Pty Ltd were commissioned to conduct this process flow sheet optimisation test work, as a follow-on program from that reported on 21 November 2023 ('**Q4 2023 Test work**'). The program used a blended composite ('**Blended Composite**') comprising both GCM Composite 1 and GCM Composite 2 (see announcement 21 November 2023) and 2kg charges, with the objective to test the McIntosh ore's responsiveness to various regrind and frother reagent options.



The key findings from this test work are:

- McIntosh ore recovery is amenable to various grinding options under the flotation circuit and conditions that were developed for the Q4 2023 Test work.
- 3 stage attrition achieves the target concentrate grade of 95% TGC at high recoveries (>90%).
- Further confirmation of flake size aligning with preferred starting flake size for battery anode material.
- Frother reagent MIBC achieves the best results in terms of recovery and grade.

The Q4 2023 Test work demonstrated a significant milestone with the potential to upgrade to **concentrate ore grades of over 97% C(t) by conventional flotation with high open circuit recoveries >90%**. This flotation circuit utilised a 3 stage attrition and 6 stage cleaning flow sheet, as depicted in Figure 3. The grinding circuit from the Q4 2023 Test work simulated a 3 stage stirred media mill attrition circuit at 5 minutes attrition time per stage.

Following the positive results of the Q4 2023 Test work this new test work programme ('**Q1 2024 Test work**') was developed to test if the McIntosh ore is amenable to further optimisation of the cleaner circuit and frothing reagents. Three grinding and frother reagent options were considered:

- Option 1 – 2 stage stirred media mill attrition at 7.5 minutes per stage, using W22.
- Option 2 – 4 stage stirred media mill attrition at 5 minutes per stage, using W24 and H27.
- Option 3 – 3 stage stirred media mill attrition following one stage of polishing, at 5 minutes per stage, using W24 and H27.

Results from the Q4 2023 Test work and the Q1 2024 Test work confirm ore recovery is **amenable to various grinding options** under the flotation circuit and conditions that were developed for the Q4 2023 Test work. The recent test work also examined the selectivity of differing frother reagents, with MIBC found to achieve the best results in terms of concentrate recovery and grade. This was further confirmed in a control test at the end of the program which achieved >95% TGC concentrate grade with high recoveries of >90%. A further positive outcome of both test work results is confirmation of the flake size. Both sets of test work confirm that most of the flakes **have dimensions between 38-150µm** (Figures 1 and 2), **aligning with the preferred starting flake size for battery anode material which is <150µm**. This feedstock is then micronised to smaller particles between 5-45µm before being shaped into spherical graphite. Converting coarse flakes (>150µm) into the required smaller particles sizes (5-45µm) is expensive as the required size reduction is energy intensive, adding additional processing cost to convert the coarse flakes into smaller particles.



Figure 1. Mass Distribution of Graphite Concentrate – Q1 2024 Test work

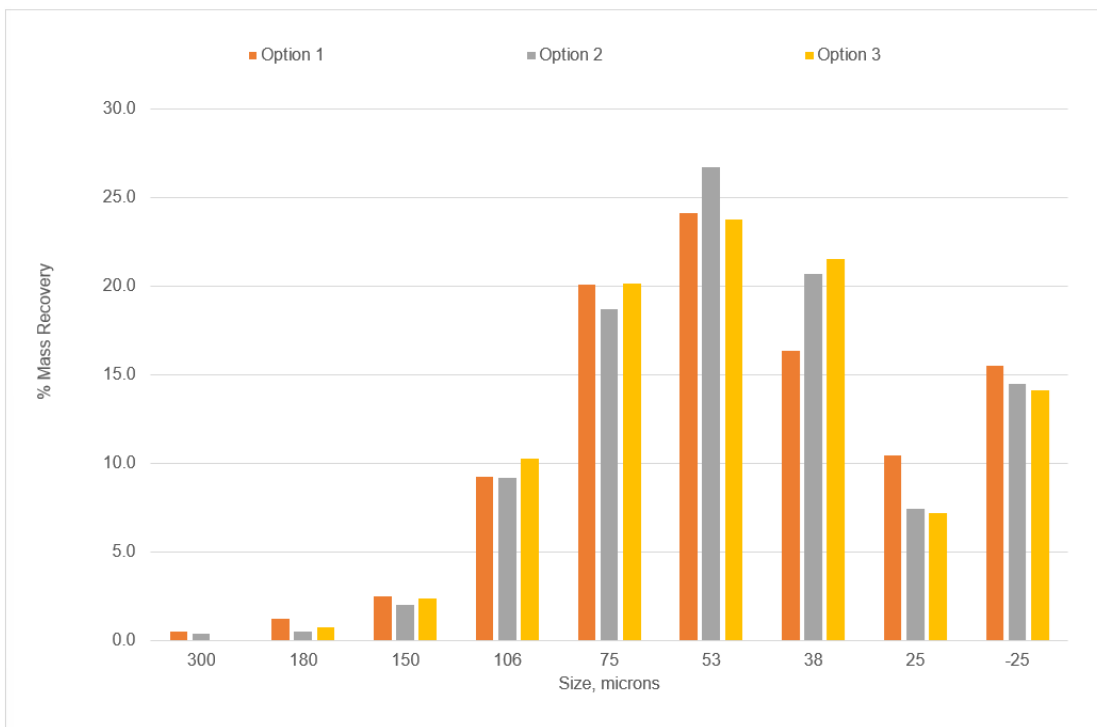
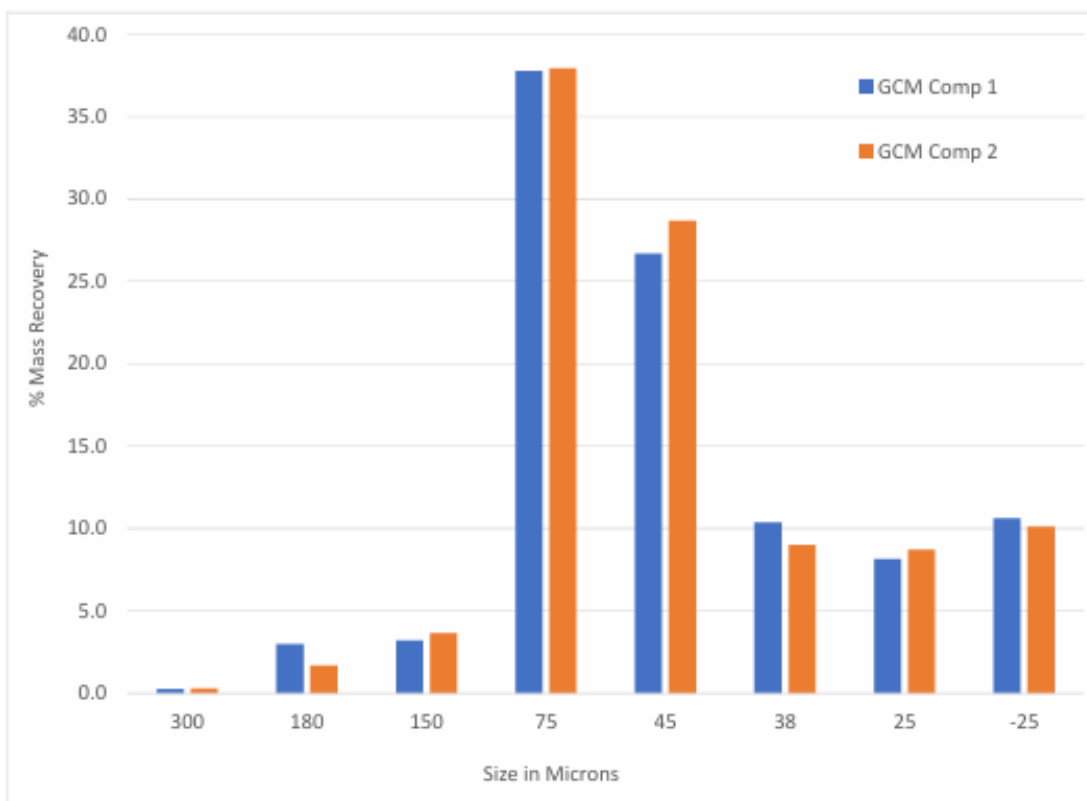


Figure 2. Mass Distribution of Graphite Concentrate – Q4 2023 Test work





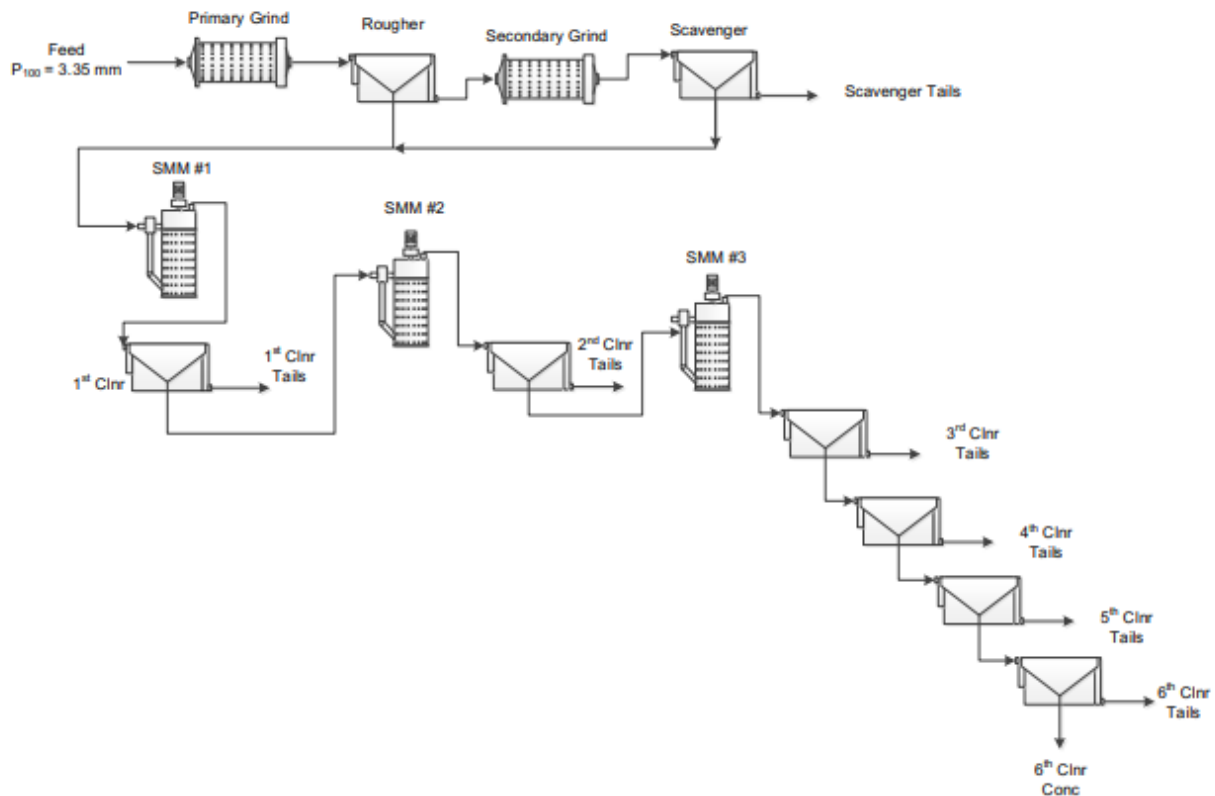
Results of the Q1 2024 Test work can be seen below and reaffirm the view that the flow sheet from the Q4 2023 Test work is currently the most optimal for graphitic ore from the McIntosh Project ahead of a more systematic process flowsheet development program, which will investigate and optimise process variables such as primary grind size, cleaner circuit configuration, reagent regime and dosages or pulp densities.

Table 1. Results from test work assessing different flow sheet methodologies.

Test number	Sample	Screening	Polishing	Regrinds	Frother reagent	Mass recovery %	C(t) Grade %	C(t) Recovery %
Q4 2023 Test work								
GCM 1	GCM Comp 1 (1kg)	No	No	x3 @ 5 minutes	MIBC	4.08	97.1	96.7
GCM 2	GCM Comp 2 (1kg)	No	No	x3 @ 5 minutes	MIBC	3.60	97.6	96.5
Q1 2024 Test work								
Option 1	Blend Comp (2kg)	No	No	x2 @ 7.5 minutes	W22	4.93	78.6	95.8
Option 2	Blend Comp (2kg)	No	No	x4 @ 5 minutes	W24 and H27	4.08	91.4	94.1
Option 3	Blend Comp (2kg)	No	Yes	x3 @ 5 minutes	W24 and H27	4.34	87.7	95.3
Control test	GCM Comp 1 (1kg)	No	No	x3 @ 5 minutes	MIBC	4.12	95.1	94.2

This test work program was designed to analysis the impacts of the varying grinding and frother regimes on the relative concentrate grades, not on producing high concentrate grades of >95% TGC. Therefore, it was not unexpected that lower concentrate grades and recoveries resulted. The final test in the series, an exact repeat of the first test in 2023, confirms that the 2023 flowsheet produces concentrate grades >95% TGC.

Figure 3. Current open-circuit cleaner flotation flow sheet



PROJECT LOCATION ADVANTAGE

The McIntosh Graphite Project (Figure 4) is well situated in Western Australia being close to key end user markets and only 280km by sealed highway to a deep-water port. The location also benefits from strong government support for the development of critical mineral deposits. This governmental backing is crucial, providing a stable and supportive framework for operations and grants through the Critical Mineral Fund. The McIntosh project, therefore, not only stands out for its geographic and infrastructural advantages but also for being in a jurisdiction that values and promotes mining activities. The synergy of these factors makes the McIntosh Project an attractive proposition for battery anode end users, who increasingly prioritize responsible sourcing from stable, reputable countries known for their good environmental practices. Another key advantage of the McIntosh Project is its proximity to clean energy sources, particularly the Ord River Hydropower facility. This proximity aligns perfectly with the growing global emphasis on sustainable mining practices and responsible sourcing. The use of hydropower for the project's energy needs significantly reduces the carbon footprint, making the end product more appealing to environmentally conscious consumers and industries.

Figure 4. McIntosh Project Location



The McIntosh project location advantage:

- ✓ Tier 1 Location – Western Australia ü 12km to Great Northern Highway via Sealed Roads.
- ✓ Proximity to Clean Energy - Ord River Hydropower.
- ✓ Proximity to Port - 280km to Deep Water Port of Wyndham.
- ✓ Close proximity to key end users in Asia.
- ✓ Strong government support for development of critical mineral deposits.

Battery anode end users are attracted by supply from stable, reputable countries with good environmental practices (Responsible Sourcing).



NEXT STEPS UPDATE

GCM reported in the 21 November 2023 announcement the various next steps it will be taking to progress the McIntosh Project. GCM is pleased to advise numerous activities are underway, and the information and results from those commenced to be used to inform future activities.

The immediate focus for GCM is to further its understanding of the various market options and products available from the McIntosh project. GCM has therefore prioritised:

- Marketing analysis to identify potential concentrate and downstream products and markets, including the lithium-ion battery market.
- Performance of a comprehensive metallurgical test work program to optimize each processing step from primary grinding, rougher and various cleaning stages for the McIntosh deposits. The results of these tests will support design and marketing activities for concentrate and downstream products.
- Continue activities to support a JORC mineral resource update, focusing on fine graphite flake size.

Competent Person Statement

The information in this report that relates to the metallurgical activities are based on information compiled by Oliver Peters, who is a Member of the Professional Engineers of Ontario and the Principal Metallurgist and President of Metpro Management Inc. Oliver Peters has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking 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'. Oliver Peters consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Authorisation

Authorised for release by the Board of Green Critical Minerals Limited.

Forward Looking Statements

Statements contained in this release, particularly those regarding possible or assumed future performance, costs, dividends, production levels or rates, prices, resources, reserves or potential growth of Green Critical Minerals Limited, are, or may be, forward looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Actual results and developments may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors.