28 August 2024

#### **Beowulf Mining Plc**

("Beowulf" or the "Company")

#### **Graphite Anode Materials Plant update**

Beowulf (AIM: BEM; Spotlight: BEO), and its wholly owned Finnish subsidiary Grafintec Oy ("Grafintec"), are pleased to provide an update on the ongoing optimisation work for the Graphite Anode Materials Plant ("GAMP" or the "Project").

# Highlights

- Water treatment flow-sheet to recycle sodium hydroxide ("NaOH") developed by Grafintec in partnership with Dorfner Anzaplan GmbH ("Anzaplan")
- Water treatment process recovered more than 90 per cent of the NaOH
- Recycled NaOH of high quality and suitable for reuse in GAMP for production of battery-grade graphite (>99.95 per cent graphite purity)
- High-quality calcium carbonate ("Lime") produced as by-product from the process can be used for neutralisation of the acidic wastewater and potentially sold to other industries
- The ability to recycle and reuse NaOH, the primary reagent in the purification process, decreases its overall consumption thereby reducing both the operating cost and environmental impact

## Ed Bowie, Chief Executive Officer of Beowulf, commented:

"Excellent progress continues to be made at GAMP. With much of the technical work relating directly to the production of anode material well-advanced, recent activities have been focused on optimisation work and secondary workstreams such as the treatment of process water and the recycling reagents. The results for the recycling of NaOH, at over 90 per cent, have exceeded expectations and have a very positive impact on the overall Project by reducing both the input reagent costs and the environmental impact."

"With a busy time ahead progressing the Pre-Feasibility Study ("PFS") and Environmental Impact Assessment ("EIA") for the GAMP, we look forward to updating the market in the coming months"

## Rasmus Blomqvist, Managing Director of Grafintec, commented:

"I am very pleased with the progress we have made over the recent months, demonstrating not only that our proposed GAMP process can produce high-quality anode materials, but also that recycled reagents from the purification process can be reused. This recycling reduces the overall consumption of reagents, reducing cost and our environmental footprint. Sustainability is a prerequisite for the successful development of any industrial or mining project and the recent work undertaken by our team and partners demonstrates that the environmental impact can be significantly reduced by innovative thinking."

#### GAMP Water Treatment Test-work Update

purification process. The focus of the wastewater treatment was to demonstrate that NaOH, the main reagent, can be recycled and is suitable for reuse in the process. The results from the bench-scale testing demonstrate that the water treatment flowsheet can successfully concentrate more than 90 per cent of the NaOH from the caustic wastewater. Further, additional purification tests on spheronised graphite using recycled NaOH produced battery grade graphite of 99.96 per cent fixed carbon.

The water treatment process also produces Lime which is needed for the neutralisation of the acidic wastewater stream from the sulphuric acid purification step. The Lime produced from the caustic wastewater treatment process was successfully tested for neutralisation of the acidic wastewater. After neutralisation, the acidic wastewater was blended with the treated caustic wastewater and analysed at Anzaplan's laboratory. The analysis of the wastewater confirms that the most critical chemical and physical properties are well below general limits for wastewater discharge into Finnish municipal sewage systems.

Whilst a proportion of the Lime produced from the wastewater treatment process will be used for the neutralisation of acidic wastewater, the test-work also demonstrated that excess Lime is produced in the process. The Lime has been analysed and compared to commercial technical grade products and shows only minor differences in the chemical composition of the two products. It can thus be assumed that the excess Lime can potentially be sold to other markets and generate additional income for the Project.

The positive results and findings from the water treatment process are expected to have positive impacts on the PFS, EIA and environmental permitting processes for GAMP. The high concentration of recycled NaOH and Lime significantly reduces the need to add fresh NaOH and Lime to the process, thus reducing the reagents costs and potentially offsetting part of the cost related to wastewater management. It is also likely to have a significant positive impact on the sustainability of the Project. The production of NaOH and Lime is associated with high carbon footprint and therefore by reducing the use of fresh reagents, the overall greenhouse gas emissions of the Project will be significantly reduced.

### EU Critical Raw Materials Act and Strategic Projects Application

On 23 May 2024, the European Union's ("EU") Critical Raw Materials Act ("CRMA") was enacted. The goal of the CRMA is to strengthen the critical raw materials value-chain within the EU by diversifying imports, reducing and monitoring strategic supply-risk, and enhancing the sustainability and circularity of the raw-materials value-chain. The CRMA has set a target that by 2030, 40 per cent of all processed critical raw-materials used within the EU are produced by the EU, and that 10 per cent of the critical raw-materials used are extracted from within the EU. To reach the CRMA targets, a regulatory framework, known as the Strategic Projects framework, has been developed. A Strategic Project application process has been drawn-up by the European Commission with the intention that successful projects will benefit from access to faster permitting processes and additional sources of capital.

The first call for applications for Strategic Projects was issued on 23 May 2024 with the first deadline date on 22 August 2024. A second call for applications for Strategic Projects is planned for early 2025.

Grafintec intends to complete the PFS and EIA for GAMP, demonstrating the technical viability of the Project, and apply for Strategic Project status in 2025. The Company assesses that the greater level of maturity of its graphite business will enhance its chances of being successful with the Strategic Project application.

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