

# Innord successfully builds mini-pilot; Targets moving to a cash flow demonstration plant

Montreal, April 3, 2019 – Geomega Resources Inc. ("GéoMégA" or the "Corporation") (TSX.V: GMA) is pleased to provide an update on Innord Inc.'s continuing successful validation of its proprietary ISR technology and its plans for a 1 ton per day of third party sourced magnet waste demonstration plant.

### **Mini Pilot**

Innord Inc. ("Innord"), a private subsidiary controlled by GéoMégA, has now completed the construction and full operation of the lab scale pilot unit for recycling and processing rare earth permanent magnets. What started in 2018 as just another step in the planned scale up to a 20 Litres processing reactor, has been transformed into an operational mini-pilot unit that represents the extraction and purification flowsheet of the innovative and proprietary clean ISR technology for recycling permanent magnets. The mini-pilot includes (i) a grinding/sieving section, (ii) the ISR reactor and the associated filtration units, (iii) the major reagent recovery and recycling circuit and (iv) a furnace, all connected and operating to demonstrate the full recycling process of rare earth magnets to saleable rare earth oxides. The mini-pilot has the throughput to process two kilograms of magnet waste feed during each batch.

The pilot uses only off the shelf type equipment, has an operating temperature of less than 200°C during hydrometallurgy and functions predominantly in atmospheric or near atmospheric pressure conditions.

# **ISR Technology validation**

Setting up the pilot allowed Innord to validate many aspects of the ISR process in 10X larger scale, which performed exactly as anticipated based on prior lab tests. Major reagent recycling is currently operating at approximately 90% recovery with no wet tailings produced from the process. The main waste product from the process is iron residue that Innord intends to provide to the local iron industry. The way the process was designed, energy consumption is relatively low, and the process is considered energy efficient. Moreover, Innord is evaluating an option to use a by-product of the process as a green source of energy to potentially become energy self-sufficient. Average direct operating costs for third party sourced magnet feed grading at 30% Total Rare Earth Oxide (TREO) were confirmed to be about \$3.00/kg of TREO.

Innord will continue operating the mini-pilot in parallel to obtain additional operational data and to keep performing optimization and improvements to the process while the demonstration plant is being built.

# Demonstration plant – 1 tonne per day with cashflow generation

Based on the confirmed operating conditions and costs, Innord has completed internal models for the construction of a demonstration plant with an initial processing capacity of 1 tonne per day of feed material. The demonstration plant will process feed material exclusively sourced from arms length third party sources which are not considered a mineral as contemplated by NI 43-101. Based on these models, the capital cost for the demonstration plant is expected to be between \$1M and \$2M CAD with a construction period of up to 9 months. The Corporation and Innord are in discussions with several engineering firms to begin a Front-End Engineering Design (FEED) and an Engineering Procurement Construction Management (EPCM) contract for the realization of the demonstration plant project. The proposed timeline of the demonstration plant project will be announced once an engineering contractor has been selected.

Based on the existing sources of feed, for some of which Innord has already signed an LOI (see press release October 25, 2018and February 28, 2019), the demonstration plant could process approximately 330 tonnes of feed and produce over 100 tonnes of rare earths oxide in a full year of operation. For greater clarity, none of the feed will be sourced from the Montviel property or from any other mineral property owned by the Corporation. Based on today's market pricing, this could potentially generate over \$6M in revenues.

Due to the flexible design of the ISR Technology, the Corporation and Innord estimate that with minimal additional capital expenditures, the demonstration plant could then be revamped to process over 1.5 tpd.

Based on a very conservative internal model, that has yet to be validated by an external engineering firm, the Corporation estimates that at 1.5 tpd operation, which is the base model envisioned by Innord, the recycling operation could produce over \$10M (based on todays pricing) annually in revenues with 24% profit margins (considering cost of feed that the company is expecting based on ongoing discussions with potential suppliers and LOI already signed, operating costs and transportation quotes received by Innord). Capital payback on the project is estimated by management to be 1 to 2 years. The operation could then be easily increased to process larger amounts of feed to accommodate the continuous growth in large rare earth magnet applications such as wind power and transport electrification.

### Preliminary estimates based on 1.5 ton

Full Plant feed throughput (Base case)	1.5 tpd
Average grade of feed*	30% TREO (Nd, Pr, Dy, Tb)
Capital costs*	\$1M to \$2M
Direct operating costs*	\$3.00 / kg of TREO
Construction period*	Up to 9 months
Sales*	\$10.2M
Cost of Sales*	\$340k
Cost of Goods Sold*	\$7.4M
Contribution margin*	24%
Capital payback*	1 to 2 years

\*Average grade of feed is based on material samples already received from multiple future suppliers, requests for quotes by suppliers in Europe, Asia, North and South America.

**Capital costs & Construction period** were estimated based on received quotations for equipment, engineering and construction costs average going pricing and consultations with external firms. More accurate estimation of cost will be available upon termination of FEED.

**Direct operating costs** were calculated and validated by the Corporation's mini-pilot plant that was built and operated by Innord at the CNRC facility in Boucherville, Quebec. Energy and reagent costs were estimated based on commercial quotations and today's going rates.

Sales were estimated based on average grade of feed and current spot market pricing as reported by Shanghai Metals Market.

**Profit margin, costs and capital payback** were estimated based on quotes received by the Corporation and discussions with end users, direct operating costs, including facility leasing, transportation costs and other fixed costs.

"It has been a long time in the making but we have finally reached the stage where we could see a path toward GéoMégA becoming a rare earth producer in the foreseeable future. The technical team at Innord completed an amazing job running R&D over the last 5+ years to develop the ISR Technology with a very limited budget during a very difficult period for the rare earths sector. That technology has now passed the first tests towards potential commercialization and the timing could not have been better. Management sees more and more interest in the sector every month. China is importing more rare earths, Lynas Corporation, the main rare earth producer outside of China, receiving a takeover bid and pricing for some of the elements is finally on the rise. The next few months will be crucial in kicking off all the engineering studies and the construction process for the proposed demonstration plant. We are very excited to be nearing the day that we potentially contribute to putting Canada on the map as a rare earth producing country and doing it in a green and sustainable way by initially recycling permanent magnets. Our ISR Technology and permanent magnet recycling capability should give us the confidence and the technical credibility to advance our Montviel deposit and be ready when global demand, especially outside of China, may justify a new rare earth mine in Canada." commented Kiril Mugerman, President and CEO of GéoMégA and Innord.

All the experiments and the technology developments have been conducted and supervised by Dr. Pouya Hajiani (Ph.D. Chemical Engineering), CTO of GéoMégA and he approves the technical information in this press release. The mini-pilot has been built and assembled by Innord and the tests were conducted by Dr. Hajiani and the Innord technical team.

### About GéoMégA (www.geomega.ca)

GéoMégA is a mineral exploration and evaluation company focused on the discovery and sustainable development of economic deposits of metals in Québec. GéoMégA is committed to meeting the Canadian mining industry standards and distinguishing itself with innovative engineering, stakeholders' engagement and dedication to local transformation benefits. GéoMégA owns the Montviel rare earth carbonatite deposit and is advancing sustainable rare earth refining through Innord's ISR Technology. In addition, GéoMégA holds over 17.8M shares, representing over 20% of the issued and outstanding shares of Kintavar Exploration Inc., a mineral exploration company that is advancing the Mitchi stratiform copper project in Quebec.

### About Innord Inc.

Innord is a private subsidiary of GéoMégA of which GéoMégA owns 96.1%. The goal of Innord is to develop and optimize the proprietary ISR Technology for extraction and separation of rare earth elements. Innord focuses on scaling up the technology through processing rare earth enriched secondary sources (recycling of end of life and manufacturing waste) and then to apply the technology to primary mining feeds.

# For further information, please contact:

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