

# July 2024 Demonstration Plant Construction Update

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TORONTO, Aug. 07, 2024 - [Giyani Metals Corp.](#) (TSXV:EMM, GR:A2DUU8) ("Giyani" or the "Company"), developer of the K.Hill Battery-Grade Manganese Project in Botswana ("K.Hill" or "the Project"), is pleased to provide an update on construction of the Demonstration Plant ("Demo Plant").

## Highlights:

- Substantial progress has been made at the Demo Plant in July with the installation of five additional modular process skids ("Process Modules"). Seven of the nine Process Modules have now been installed.
- The five new Process Modules include:
  - Three purification circuits (installed in two Process Modules), including reactors, filter feed tanks and filtrate tanks. These modules form the core of the hydrometallurgical process and allow the removal of impurities ahead of crystallisation.
  - Reagent make-up, comprising powder debagging stations and dissolution tanks for three primary reagent systems. Reagents will be dosed throughout the plant at the required locations.
  - The filtration Process Module, complete with four filter presses which serve the various impurity removal processes.
  - Water treatment and storage, including both process water and Reverse Osmosis water systems.
- Installation of the instrumentation and electrical cabling, as well as piping works have commenced and are near complete for the Crystallizer Unit and the internal Crystallizer Process Module. This intricate work will progress to the other Process Modules in sequence.
- In terms of services, the ventilation system installation is complete. This purpose-built system is designed to ensure a safe and comfortable operating environment within the plant. The main reticulation for the utility steam system has been installed and successfully pressure tested.
- Civil works for the external waste storage tank system are in progress. The waste storage system collects process discharge and waste streams. These streams will be analysed to aid in the design and cost optimisation of the water recovery system designs for the commercial plant.
- Simulation test work continues on the Yokogawa Distributed Control System ("DCS") software that will be used to control the Demo Plant, which will operate as a continuous process flow, rather than on batch or lock-cycle methods. This is a massive advantage of the Demo Plant allowing Giyani to understand how the Commercial Plant will respond ahead of construction.
- The Project remains on track for commissioning and production of battery-grade manganese in Q4 2024 for offtaker testing and qualification.

Danny Keating, President and CEO of the Company, commented:

*"It is exciting to see the Demo Plant coming together and appreciating the scale of the facility we are constructing, which is expected to be one of the largest battery-grade manganese process testing and optimization facilities in the world. Successful construction and operation of the Demo Plant is key to demonstrating the inherent value of the Project to investors."*

*The Plant's ability to operate continuously at this pre-commercial scale will allow Giyani to understand how the Commercial Plant will respond ahead of construction, pre-emptively detecting and de-risking potential issues that could arise during ramp-up.*

*The value of this facility as a tool to optimize our proprietary flowsheet and reduce operating costs will be immeasurable. The most important feature will be that we will now be able to provide offtakers with tonnes of product for testing, rather than providing samples measured in grams. This level of production is not usually available until commercial production is achieved, further de-risking the Project for our potential partners and financiers."*

## Demo Plant Construction Update

The Demo Plant will consist of nine Process Modules, each a self-contained process system within a fixed frame. An additional five of these Process Modules have been installed since the June update (see June 20, 2024 news release), see Figures 1A, 1B, 2, 4 and 5 below

### Figure 1A and 1B: Purification Process Modules 1 & 2

The Demo Plant construction process follows a set order of Module installation to allow sufficient working space in the plant as well as simultaneous activities to speed up construction and ultimately commissioning. The plant is built from the Crystallizer Units to the ore delivery and ball mill, with the detailed piping and instrumentation following the Module installation. Within the Plant, the following progress has been made:

- all nine bases/footings for the Process Modules have been installed;
- seven of nine Process Modules have been installed;
- all eight ventilation circuits have been installed;
- instrumentation & wiring is complete on the first Process Module and is in progress on the second Process Module;
- the utility steam systems have been successfully pressure tested, and concrete has been poured for the external waste storage tank system;
- assembly of the remaining Process Modules continues offsite for transportation and installation at the Demo Plant.

### Construction and Commission

Five additional Process Modules have been installed since June and are shown in Figures 1A, 1B, 2, 4 and 5 below.

### Figure 2: Reagent Make-up Process Module

The Demo Plant is at 1:10 engineering scale of the planned commercial plant in Kanye, Botswana ("Commercial Plant"). For example, the leach tanks have a 60cm diameter in the Demo Plant and this is expected to be 8-10x larger at approximately 5m in the Commercial Plant.

### Figure 3: Demo Plant Render

The detailed construction program takes advantage of sequential mechanical, piping, electrical, and instrumentation installation to allow cold commissioning to follow the Process Module sequence in a highly efficient manner.

### Figure 4: Filtration Process Module

Construction of Process Modules continues from the South end of the facility to the North. Once installed, Process Modules are completed mechanically, electrically and then fitted out with piping and instrumentation. After this, the initial stages of commissioning C1, C2 and C3 are undertaken at an individual Process Module level. Commissioning of the full process flow (C4 & C5) will only be concluded once all of the individual Process Modules are complete.

Stages of construction:

- C1 - Mechanical Completion
- C2 - Dry testing, direction testing, loop testing
- C3 - Cold/Water Commissioning, software testing

- C4 - Hot Commissioning with reagents and steam
- C5 - Production Ramp-up

#### Figure 5: Water Treatment & Storage Process Module

As part of the construction process, the Company and Met63 Ltd ("Met63"), the EPCM contractor for the Demo Plant, have agreed to restructure the two site teams and create a single, combined team to improve efficiencies and management of the project. The existing agreement between the two companies (previously announced on September 6, 2022), already envisaged a transition and hand-over of the plant from Met63 to Giyani and this process will now commence as the plant commissioning phase approaches. The revised agreements will bring synergies as the combined team provides direct experience in the final phases of construction and importantly assist Giyani in its preparations for commissioning and ultimately operation of the Plant.

#### Demo Plant Operations Update

Giyani is continuing with software development and simulation test work on the Yokogawa DCS software that will be used to operate Giyani's fully continuous process facility. The ability to continuously operate at this pre-commercial scale will allow Giyani to understand how the Commercial Plant will respond ahead of construction, minimizing issues that could arise during ramp-up. Unlike a lab- or pilot-scale operation, a full, industrial control system is required to operate this large-scale, automated, hydrometallurgical plant.

The development of all process standard operating procedures ("SOPs") is now complete. As the Demo Plant is a duplicate of the anticipated Commercial Plant, the overall operating requirements and system requirements are very similar. Alongside the engineering, commercial and research benefits of the Demo Plant, the development of SOPs will facilitate a smooth transition to full-scale production.

Finalization of the contract for the on-site, independent, ISO-certified, hydrometallurgical laboratory is imminent. This laboratory, which includes ICP-OES and XRF equipment, will allow full commercial-level metal accounting and provide rapid assay turnaround times to enable effective operation of the Demo Plant.

#### About Giyani

Giyani is focussed on becoming the dominant western-world producer of sustainable, low carbon high purity battery grade manganese for the electric vehicle ("EV") industry. The Company has developed a proprietary hydrometallurgical process to produce battery grade manganese (HPMSM), a lithium-ion battery cathode precursor material critical for EVs.

The Company has secured US\$26m in financing from two strategic partners, ARCH Sustainable Resources Fund LP and the Industrial Development Corporation of South Africa, as it aims to progress the K.Hill battery-grade manganese project in Botswana to construction by building and operating the Demo Plant and completing a Definitive Feasibility Study by H1 2025.

Additional information and corporate documents may be found on [www.sedarplus.ca](http://www.sedarplus.ca) and on Giyani Metals Corp. website at <https://giyanimetals.com/>.

#### Qualified Persons / NI 43-101 Disclosures

A National Instrument 43-101 ("NI 43-101") technical report including results of the PEA and the MRE can be found on SEDAR+ at [www.sedarplus.ca](http://www.sedarplus.ca) and made available on the Company's website at <https://giyanimetals.com/>.

Mr. Justin Taylor CEng FIMMM QMR BSc Eng (Chem) is a qualified person, as defined by NI 43-101. Mr. Taylor is the Company's Group Process Engineer and has reviewed and approved the scientific and

technical content contained in this news release but is not independent for the purposes of NI 43-101.

On behalf of the Board of Directors of Giyani Metals Corp.

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This news release contains "forward-looking information" within the meaning of applicable Canadian securities legislation. All statements in this news release, other than statements of historical fact, that address events or developments that Giyani expects to occur, are "forward-looking statements". Forward-looking statements are statements that are not historical facts and are generally, but not always, identified by the words "expects", "does not expect", "plans", "anticipates", "does not anticipate", "believes", "intends", "estimates", "projects", "potential", "scheduled", "forecast", "budget" and similar expressions, or that events or conditions "will", "would", "may", "could", "should" or "might" occur.

Such statements include without limitation: the Company the ongoing construction, commissioning and operation of the Demo Plant, installation of additional Process Modules, design and finalization of the lab, and timing thereof, completion and timing of the DFS or at all.

All such forward-looking statements are based on the opinions and estimates of the relevant management as of the date such statements are made and are subject to certain assumptions, important risk factors and uncertainties, many of which are beyond Giyani's ability to control or predict. Forward-looking statements are necessarily based on estimates and assumptions that are inherently subject to known and unknown risks, uncertainties and other factors that may cause actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking statements. In the case of Giyani, these facts include anticipated operations in future periods, planned exploration and development of its properties, and plans related to its business and other matters that may occur in the future. This information relates to analyses and other information that is based on expectations of future performance and planned work programs.

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A photo accompanying this announcement is available at

<https://www.globenewswire.com/NewsRoom/AttachmentNg/2c6c376e-2fb4-4023-ba5a-5b1f99ca485b>

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