



Starfield Resources Announces Successful Test Results From Hydrometallurgical Process

Hematite Byproduct Presents Potential New Revenue Stream

Toronto, Ontario – September 4, 2008 – Starfield Resources Inc. (TSX: SRU / OTCBB: SRFDF) today announced successful results from the ongoing hydrometallurgical testing program of its novel, environmentally friendly and energy-efficient process to treat the Company's Ferguson Lake massive sulphide ore. An operational update is also included at the end of this news release.

During batch testing, the iron hydrolysis and acid recovery circuit worked extremely well, producing a high quality hematite and simultaneously recovering a high strength hydrochloric acid. The hematite is of sufficient purity and quality to be used directly in steelmaking, and therefore presents a potential new revenue stream for the Ferguson Lake project.

"We are very impressed with the promising results achieved in the batch testing program," said André Douchane, President and Chief Executive Officer. "We are very pleased that the iron hydrolysis and acid recovery circuit is working very well because it is important to the efficient operation of the entire process circuit."

Results to date have shown that:

- Hydrochloric acid can be recovered at a strength of 34%. This is significantly better than any conventional acid recovery process currently being operated, such as pyrohydrolysis which is used in the steel industry.
- Up to 90% of the iron can be precipitated as highly crystalline hematite. The hematite produced is "black hematite" which is a very pure form of hematite. The iron content of the precipitates has varied from 67% to 71% iron. The precipitates show no trace of chloride, or base metals, making this material a very suitable feed for a steelmaking process.
- The precipitated solids have a moisture content of only 10%, demonstrating that they filter and wash very well. This significantly aids the water balance of the hydrometallurgical plant.
- Since no base metals are detected in the final iron solids, it will be possible to remove most of the iron from the circuit without incurring any loss of base metals. This compares very favourably with existing hydrometallurgical processes.

Since the publication of the Company's Scoping Study that was filed to SEDAR on May 1, 2008, considerable progress has been made towards optimizing and finalizing the process circuit. The magnesium chloride matrix has been abandoned and replaced by a form of iron chloride, which is generated as a natural consequence of the hydrochloric acid primary leach. All the data generated with magnesium are equally applicable to iron. The primary leach and secondary leach, both of which were successfully piloted at SGS Lakefield in 2007, perform exactly the same with iron as the matrix as they did with magnesium.

"It should be noted that substituting iron for magnesium is a simplification, adapted because iron has been found to behave much better than magnesium during hydrolysis, making the hydrolysis and acid recovery circuit much easier and more efficient to operate, and is based on the PORI Process that was operated for several years in the 1970s." added Dr. Bryn Harris.

Currently, a continuous hydrolysis and acid recovery circuit is being commissioned by Starfield in Montreal, and is expected to be operational by the end of September. Planning for a pilot plant is also underway, targeted for testing to begin in mid-year of 2009 when a bulk sample will be sent from Ferguson Lake.

"We are very pleased to have Hatch Engineering contracted to help with our pilot plant design and testing," said Mr. Douchane. Brian Krysa of the Hatch Group has been appointed to the pilot plant team, bringing his vast experience and the resources of Hatch Engineering. The Hatch Group provides process and detail engineering, technologies, business consulting and project and construction management services to the Mining & Metals, Energy and Infrastructure sectors.

Dr. Bryn Harris, B.Sc., Ph.D., FCIM, FIMMM, C.Eng, is the Qualified Person for the hydrometallurgical process and has reviewed this news release in accordance with NI 43-101.

Operational Update

Significant progress has been made at the Ferguson Lake project this summer. As planned, the drill rig has been moved 20 kilometres from the North Zone to the Y Lake Zone to explore the large geophysical anomaly with surface mineralization. At the current rate of drilling, the Company expects to drill in excess of its 15,000 metre 2008 drilling program.

The Company also announced that the new airstrip near the camp is operational, helping lower transportation costs. The Company plans to extend the airstrip further to allow a Dash 7 airliner to land, which will further reduce transportation expenses.

About Starfield

Starfield Resources Inc. is an advanced exploration and emerging early stage development company focused on its Ferguson Lake Nickel-Copper-Platinum-Palladium-Cobalt property in Nunavut, Canada. The property is emerging as Nunavut's largest

ongoing base and precious metal project. Starfield has funded the development of a novel, environmentally friendly and energy-efficient hydrometallurgical flowsheet to recover metals from its Ferguson Lake massive sulphides.

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