

## **BLOOM LAKE: FLOWSHEET IMPROVEMENT AND RECOMMISSIONING**

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### **ABSTRACT**

Quebec Iron Ore Limited (QIO), a subsidiary of Champion Iron Limited (Champion), secured assets in early 2016 from the previous Bloom Lake operations in the heart of the Labrador Trough region of Northern Quebec, Canada. A plan was developed to bring the Bloom Lake facility back in operation once the iron ore market conditions improved.

The project restart involved several aggressive moves to change operational effectiveness, one of which was the utilization of the existing Phase 1 Plant with an upgraded process flowsheet and equipment. The production target was 7.4 million tonnes per annum of 66% iron ore concentrate with an approximate 10% increase in iron ore recovery.

The Phase 1 upgraded flowsheet was initially based on review of historical Phase 1 data and pilot testing data undertaken during the original Phase 1 operation and was finalized once additional metallurgical test work and process modeling was carried out by Mineral Technologies in late 2016. The final upgraded flowsheet is comprised of rougher spirals, rougher middling scavenging spirals, and an up-current classifier (UCC) with overflow scavenging spiral stage. A portion of the gravity circuit tailings treated by a series of wet high intensity magnetic separators (WHIMS) to boost overall iron recovery. This paper will describe the efforts taken to test and design the Bloom Lake Phase 1 upgraded flowsheet and report on the plant performance since commissioning in first quarter of 2018.