

# Northern Superior Reports Positive Metallurgical Testing with Flotation Concentrate Recoveries up to 95.6%

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Toronto, July 6, 2023 - [Northern Superior Resources Inc.](#) (TSXV: SUP) (OTCQX: NSUPF) ("Northern Superior" or the "Company") is pleased to report results from metallurgical testing conducted at SGS Laboratory from its Philibert gold deposit, located 60 kilometres southwest of Chibougamau, Québec, Canada (the "Philibert Project" - Northern Superior: 75%; SOQUEM: 25%).

Highlights Include:

- Arctic Fox South zone with 95.6% of the gold in 9.5% of mass;
- Arctic Fox North zone with 93.3% of the gold in 13.2% of mass; and
- Red Fox zone with 95.5% of the gold in 15% of mass.

Simon Marcotte, President & Chief Executive Officer of Northern Superior, commented: "With such high recovery of the gold content in a flotation concentrate, recovering the gold in an efficient manner is not expected to be an issue. The gold recovery by flotation from all areas tested to date is favorable and increases our confidence that the Philibert Project demonstrates the right attributes to achieve strong potential economics in the future."

A metallurgical test program was completed on three composites from the Philibert deposit, where the main objective was to develop initial metallurgical data to evaluate if the style of mineralization is amenable to flotation followed by cyanidation. Results indicate that cyanidation of the tails may not be required.

The 34 independent samples on halved NQ drill core used in the program were collected by GoldMinds Geoservices Inc. from the 2022 drilling campaign for sample preparation and gold analysis, head and composite analysis, flotation on three composites, cyanidation and flotation of tails. The three composites were selected from the hanging wall zone of the Philibert Project including the Arctic Fox South, Arctic Fox North, and Red Fox zones. The flotation metallurgical tests done on 2 kg test charges ground to P80 = 75 µm and subjected to flotation under typical conditions for sulphide flotation. The two flotation products were analyzed for gold ("Au"), silver ("Ag"), and sulphur ("S").

The evaluated samples ranged in head grade from 1.85 g/t Au (Composite 3) to 5.10 g/t Au (Composite 1). The silver content was <2 g/t in all three samples. The three composites responded well to sulphide flotation, with sulphide recoveries from 95% to 97%, gold recoveries from 93% to 96%, and silver recoveries from 38% to 68%, at between 10% and 15% mass recovery. Gold and silver contents in the flotation tails were very low at <0.2 g/t and <0.5 g/t, respectively.

Because of the low gold and silver contents in the tails, it was decided to only carry out the cyanidation tests on the flotation concentrates. Cyanidation of the flotation concentrates yielded final gold extractions ranging from 91% (Composite 3) to 96% (Composite 1).

In Table 1 below, results for screened metallic analysis for Au and Ag by Fire Assay, Sulphur by Leco, whole rock analysis by ICP method, and Graphitic carbon. The head grade was calculated using a 500-gram split of the screen metallic analysis. The gold ore grades obtained corresponded well with the results of the calculated average gold grade for Composite 2 and Composite 3 (2.90 g/t versus 2.56 g/t for Composite 2 and 1.89 g/t versus 1.85 g/t for Composite 3). However, the calculated gold grade for Composite 1 was 2.77 g/t versus a grade of 5.10 g/t obtained by screened metallics analysis. The difference is likely due to sampling challenges and the presence of coarse particles of gold in the 500-gram charge used for the screened metallics analysis.

#### Table 1: Metallurgical Testing Results

To view an enhanced version of this graphic, please visit:  
[https://images.newsfilecorp.com/files/9834/172478\\_northerntable1.jpg](https://images.newsfilecorp.com/files/9834/172478_northerntable1.jpg)

The detailed mass balance of the three composite tests are as follows (Table 2, 3 and 4).

#### Table 2 - Mass Balance - Arctic Fox South Composite 1

To view an enhanced version of this graphic, please visit:  
[https://images.newsfilecorp.com/files/9834/172478\\_northerntable2.jpg](https://images.newsfilecorp.com/files/9834/172478_northerntable2.jpg)

#### Table 3- Mass Balance - Arctic Fox North Composite 2

To view an enhanced version of this graphic, please visit:  
[https://images.newsfilecorp.com/files/9834/172478\\_northerntable3.jpg](https://images.newsfilecorp.com/files/9834/172478_northerntable3.jpg)

#### Table 4 - Mass Balance - Red Fox Composite 3

To view an enhanced version of this graphic, please visit:  
[https://images.newsfilecorp.com/files/9834/172478\\_northerntable4.jpg](https://images.newsfilecorp.com/files/9834/172478_northerntable4.jpg)

The following conclusions can be drawn from the scoping test work on composite samples from the Philibert Project:

- The three composites tested responded well to conventional sulphide flotation at primary grinds of 80-90  $\mu\text{m}$  (P80), yielding >93% gold and sulphide recoveries in mass recoveries of 10-15%;
- The three flotation concentrates responded well to cyanidation at a regrind P80 of 50 to 60  $\mu\text{m}$ , yielding gold recoveries of 91 to 96%. Cyanide consumptions of 1.5 to 2.3 kg/t NaCN were reasonable for concentrate leaching. These consumptions are equivalent to 0.18 to 0.23 kg/t NaCN on a whole mineralized zone basis;
- Overall gold recoveries via cyanidation of flotation concentrates were in the 86% to 92% range; and
- Despite the close association between gold and the sulphide minerals in the flotation process, the test work shows the gold in this deposit is not locked in the sulphides and is amenable to cyanidation.

#### Sampling and Laboratory

True widths of the intercepts reported in this press release have yet to be determined but are estimated to be 60% to 90% of reported core lengths. All NQ-size split core assays reported for 2022 were obtained by fire assay with atomic absorption finish and samples returning values over 10 ppm Au are re-analyzed, utilizing standard Fire Assay-Gravimetric methods. Samples were shipped to AGAT Laboratories with sample preparation done in Val-d'Or, Québec and sample analysis done in Mississauga, Ontario. The quality assurance and quality control protocol include insertion of blank and standard every 25 samples on average, in addition to the regular insertion of blank, duplicate, and standard samples inserted by AGAT Laboratories during the analytical process.

Additional tests may be carried out later in the year, but the results are sufficient to enable the preparation of

the first maiden NI 43-101 mineral resource estimate on the Philibert Project.

The technical content scientific aspects of this press release have been prepared by Claude Duplessis P.Eng independent Qualified Person of GoldMinds Geoservices Inc. based on SGS lab report and reviewed and approved by Mrs. Adree DeLazzer, P. Geo., a Qualified Person as defined by the National Instrument 43-101. Mrs. DeLazzer is Vice-President Exploration of Northern Superior Resources and is not considered independent.

About Northern Superior Resources Inc.

Northern Superior is a gold exploration company focused on the Chibougamau Camp in Québec. The Company has consolidated the largest land package in the region, with total land holdings currently exceeding 62,000 hectares. The main properties include Philibert, Lac Surprise, Chevrier and Croteau Est. Northern Superior also owns significant exploration assets in Northern Ontario highlighted by the district scale TPK Project.

The Philibert Project is located 9km from IAMGOLD Corporation's Nelligan Gold project which was awarded the "Discovery of the Year" by the Québec Mineral Exploration Association (AEMQ) in 2019. To date, more than C\$15 million (historical value) have been spent on the Philibert Project, with more than 77,000 metres of drilling completed. Northern Superior holds a majority stake of 75% in the Philibert Project, with the remaining 25% owned by SOQUEM. The Company retains the option to acquire the full 100% ownership of the project. Chevrier hosts an inferred mineral resource of 652,000 ounces Au (underground and open pit) and an indicated mineral resource of 260,000 ounces Au.<sup>1</sup> Croteau Est hosts an inferred mineral resource of 640,000 ounces Au.<sup>2</sup> Lac Surprise hosts the Falcon Zone Discovery, interpreted to be the western strike extension of IAMGOLD Corporation's Nelligan Deposit.

Northern Superior is a reporting issuer in British Columbia, Alberta, Ontario and Québec, and trades on the TSX Venture Exchange under the symbol SUP, and the OTCQB Venture Market under the symbol NSUPF. For further information, please refer to the Company's website at [www.nsuperior.com](http://www.nsuperior.com) or on SEDAR ([www.sedar.com](http://www.sedar.com)).

About SOQUEM

SOQUEM, a subsidiary of Investissement Québec, is dedicated to promoting the exploration, discovery, and development of mining properties in Québec. SOQUEM also contributes to maintaining strong local economies. Proud partner and ambassador for the development of Québec's mineral wealth, SOQUEM relies on innovation, research, and strategic minerals to be well-positioned for the future.

[Northern Superior Resources Inc.](http://www.nsuperior.com) on Behalf of the Board of Directors

Simon Marcotte, CFA, President and Chief Executive Officer

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<sup>1</sup> NI 43-101 Technical Report Mineral Resource Estimation for the Chevrier Main Deposit, Chevrier Project Chibougamau, Quebec, Canada, October 20, 2021, Prepared in accordance with National Instrument 43-101 ("NI 43-101") by Lions Gate Geological Consulting Inc. IOS Services Géoscientifiques Inc. for [Northern Superior Resources Inc.](#)

<sup>2</sup> Chalice Gold Mines Limited and [Northern Superior Resources Inc.](#) Technical Report on the Croteau Est Gold Project, Québec, September 2015, Prepared in accordance with National Instrument 43-101 ("NI 43-101") by Optiro Pty Ltd ("Optiro") to Chalice Gold Mines Limited and [Northern Superior Resources Inc.](#)

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