

# MacDonald Mines Commences Drilling at the Alwyn Copper-Gold Trend

Observes Iron-Silicates with Chalcopyrite Mineralization Indicative of IOCG Systems

**Toronto, Ontario – June 13, 2023 - MacDonald Mines Exploration Ltd. (TSX-V: BMK, OTC: MCDMF)** ("MacDonald Mines" or the "Company") is pleased to announce the start of a 1,200 meter drill program along the prospective McLaren Lake Fault Zone ("MLFZ") at the Alwyn Copper-Gold ("Cu-Au") trend ("Alwyn"), as well as the Glade Gold ("Au") trend ("Glade") located on MacDonald Mines 100% owned' SPJ Project near Sudbury, Ontario. The Company also reports preliminary mineralogical observations from hole AW-23-106.

# **Drilling Highlights**

- Mineralogical observations from hole AW-23-106 support the Alwyn Cu-Au mineralized system's affiliation with metasomatic iron and alkali-calcic ("MIAC") mineral systems capable of forming iron-rich copper-gold mineralization.
  - Chalcopyrite associated with actinolite (Fe-rich amphibole) and andradite garnet (Fe-rich garnet) is interpreted to represent iron seeping into the system to form iron-silicate alteration associated with chalcopyrite mineralization (Figure 2)
  - This suggests a potential for the gravity anomalies detected in the Alwyn Cu-Au trend to represent areas of stronger Fe alteration and to potentially host zones of iron-rich alteration affiliated with iron oxide-copper-gold (IOCG) mineralization.

## Drill Program Target Summary:

- Drilling of up to 1,000 meters at the Alwyn Cu-Au trend commenced on June 8<sup>th</sup>, 2023, aiming to:
  - Expand the footprints laterally and at depth of the vein networks mineralized in copper and gold identified during the 2022 drilling program and indicated by historical drilling (AFRI 41110NE0158),
  - Test the association between gravity highs and hydrothermal iron enrichments that could be suggestive of the presence of iron-rich copper-gold mineralization affiliated with iron oxide copper-gold ("IOCG") mineralization in the Alwyn Cu-Au trend.
  - Drilling integrates new data that supports the extension of copper-gold mineralization outside of the area of the Awlyn Cu-Au trend drilled in 2022 that includes:
    - The results from the 2023 gravity survey and 10 new targets generated by ALS GoldSpot in the Alwyn Cu-Au trend (see news releases of May 12, 2023, and March 3, 2023),
    - An updated geological and structural model for copper-gold mineralization at Alwyn, built using recent and digitized historical data and the Company's collaboration with ALS GoldSpot (AFRI 41110NE0158; Figure 2).
- Up to 250 meters of drilling at the **Glade Au trend** will continue to test for the presence of goldmineralized iron-rich chlorite alteration discovered during the drilling program of 2022 that is comparable to what is observed at the Scadding Deposit.
  - That zone of chlorite alteration contained 0.82 g/t gold over 40.5 m including 7.76 g/t gold over 2.9 m in AG-22-103 (see news release of September 19, 2022).

Jean-François Montreuil, Chief Geologist of MacDonald Mines commented; "The observation of iron silicate alteration associated with chalcopyrite mineralization is a positive indication that iron-rich alteration zones associated with Cu-Au mineralization could exist in the Alwyn Cu-Au trend. We are looking forward to seeing more results from our 2023 drilling in the Alwyn Cu-Au trend, which could expand the size of the Cu-Au mineralized system and confirm the relationship between iron-rich alteration/mineralization and the gravity anomalies and targets identified in collaboration with ALS GoldSpot."



528000.0 528100.0 528200.0 528300.0 528400.0 528500.0 528500.0 528700.0 528800.0 528900.0 529000.0 Figure 1. Planned drilling at the Alwyn Cu-Au trend, with gravity anomalies and ALS GoldSpot integrated targets.

Official Name	Collar location			Hole Attributes		
	Easting (m)	Northing (m)	Elevation (m)	Final Depth (m)	Azimuth	Dip
Alwyn Cu-Au Trend						
AW-23-106	528406	5172103	274	126	190	-58
AW-23-107	528406	5172103	274	In progress	235	-50

Table 1: Collar details for drilling along the Alwyn Cu-Au and Glade Au trends. Note that these are the planned collar coordinates and orientations, which will be updated during post drilling surveying.

# Copper-Gold Mineralization along the McLaren Lake Fault Zone

The MLFZ is emerging as a compelling exploration target for Cu-Au and potentially Co-Au mineralization affiliated with IOCG mineralized systems. Along the 2.5 km-long Alwyn Cu-Au trend defined in collaboration with ALS GoldSpot, near-surface Cu-Au mineralization is associated with networks of quartz-carbonate veins. Mineralogical observations from the 2022 and 2023 drilling program also indicate that some zones of chalcopyrite mineralization are associated with iron-rich alteration types (see Figure 2). Iron-rich alteration assemblages associated with K-feldspar alteration and chalcopyrite mineralization are now observed in holes AW-22-101 (specular hematite and quartz-specular hematite), AW-22-102 (actinolite-chlorite-earthy hematite) and AW-23-106 (actinolite-garnet-chlorite-earthy hematite). The ongoing drilling

program will continue to test the Alwyn Cu-Au trend and will include the testing of two positive gravity anomalies identified in January 2023, in which Fe-rich alteration potentially associated with Cu-Au mineralization could be present at higher intensities.



Figure 2. Andradite garnet ("Gnt"), and variably chloritized actinolite ("Act + Chl") with chalcopyrite mineralization in hole AW-23-106.

Regionally, the MLFZ is highly prospective for critical and precious metals mineralization. In addition to Alwyn, along the MLFZ on the SPJ Project the primary targets include the Ashigami and the Crerar showings, located respectively 4.5 km and 9.5 km southeast of the Alwyn mine (Figure 2).

# **Glade Gold Target**

Two of the three drill holes completed in the Glade Au trend in 2022 intersected broad and near surface zones of gold mineralization and confirmed that alteration and mineralization in the Glade Au trend is comparable to gold mineralization and alteration at the Scadding deposit.

The 2023 drilling program in the Glade Au trend will follow up on the successful drilling results of the 2022 and 2021 drilling programs. In 2022, hole AG-22-103 intersected three shallow zones of gold mineralization containing in core length 0.47 g/t gold over 8.5 m, 0.71 g/t gold over 10.35 m and 0.82 g/t gold over 40.5 m including 7.76 g/t gold over 2.9 m (see news release of September 19, 2022). In 2021, hole AG-21-097 confirmed the presence of high-grade gold mineralization in the Glade trend with the intersection of 113 g/t gold over 0.96 m core length (see news release of May 13, 2021).

Drilling will also continue to test the PGM potential of the Nipissing intrusion hosting the Glade system identified in the 2022 drilling program with the intersection of 0.16 g/t Pd over 4.00 m in AG-22-103 with anomalous Cu and Ni at the contact(s) between individual intrusions in the Glade Nipissing intrusion.

## **Qualified Person**

Jean-François Montreuil, P.Geo., Chief Geologist of MacDonald Mines, is the qualified person as defined by National Instrument 43-101 *Standards of Disclosure for Mineral Projects*, responsible for preparing, supervising, and approving this news release's scientific and technical content.

#### About MacDonald Mines Exploration Ltd.

MacDonald Mines is a Canadian exploration company focused on exploring for critical and precious metals in a Metasomatic Iron alkali-calcic (MIAC) mineral system on its 100%-owned, 19,720 ha (197.2 km<sup>2</sup>) SPJ Project. MIAC systems are known for hosting IOCG and affiliated deposits. The property is located 20km southeast of the prolific Sudbury Mining Camp in Northern Ontario. The Company's primary exploration focus are the polymetallic and iron-poor to possibly iron-rich Ag-Au-Cu-Co showings and prospects along the McLaren Lake Fault System that includes the Alwyn Cu-Au-(Ag-Co) trend and the Ashigami Co-Cu-Au showings, and the iron-rich to iron-poor Glade Au trend recognized to host Au mineralization comparable to the Scadding deposit. In addition, a potential for nickel, cobalt, copper, and platinum group elements in the Nipissing intrusions that are hosting the Candore, Jerome and Glade showings within the SPJ Project. To learn more about MacDonald Mines, please visit www.macdonaldmines.com

ON BEHALF OF THE BOARD

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## **Forward-Looking Statements**

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