New Porphyry Signatures at the Historic Craigmont High-Grade Copper Mine

Porphyry-Style Alteration and Mineralization at the New Craigmont Property, British Columbia, Canada

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SCIENCE. EXPLORATION. DISCOVERY.

BACKGROUND

- The Craigmont deposit is a Cu-Fe skarn originally mined from 1958-1982, extracting 34 Mt of ore averaging 1.28% Cu: one of the highest-grade copper mines in British Columbia to date.
- Craigmont is adjacent to the southern margin of the Guichon Creek Batholith, host to numerous calc-alkalic Cu-Mo-Au porphyry deposits of the Highland Valley District.
- Exploration has been limited to Nicola Group volcaniclastic rocks and sediments until now.

MAIN FEATURES

- Recent drilling into a high resistivity anomaly in the Guichon Creek Batholith just north of the historic Craigmont Mine has confirmed porphyry-style alteration assemblages:
  - K-feldspar-biotite potassic alteration
  - Epidote-chlorite propylitic alteration
  - Sericite-quartz±chlorite phyllic alteration
- Ore minerals: chalcopyrite (most common), bornite, molybdenite, rare chalcocite

RESEARCH OBJECTIVES AND METHODS

- Develop vectors for porphyry Cu exploration by characterizing alteration mineralogy and mineralization.
- Determine potential relationship and/or transition between skarn and porphyry-style mineralization.
- Determine age of mineralization and intrusive history of host rocks.
- Characterization will require microXRF, whole-rock geochemistry, and Re-Os molybdenite and U-Pb zircon geochronology.

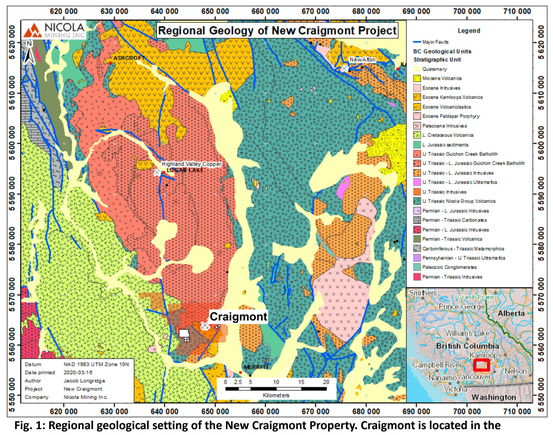


Fig. 1: Regional geological setting of the New Craigmont Property. Craigmont is located in the Quesnel Terrane of the Canadian Cordillera. (from Nicola Mining Inc, 2020)

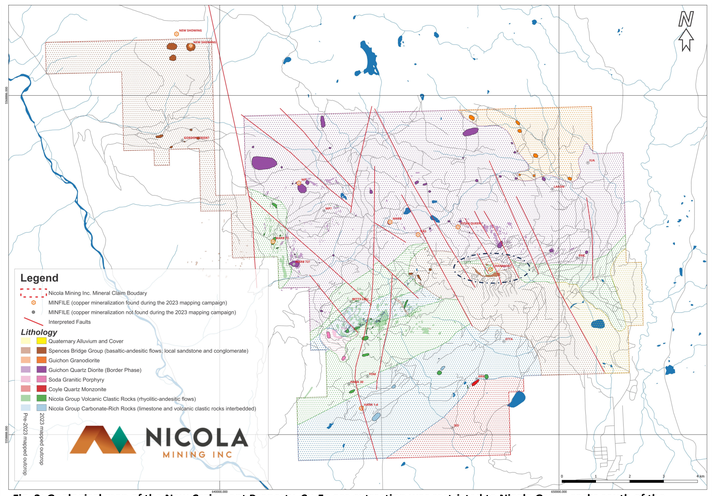


Fig. 2: Geological map of the New Craigmont Property. Cu-Fe ore extraction was restricted to Nicola Group rocks south of the Guichon Creek Batholith. Approximate current study area is focused on drillholes proximal to the original mine and Cu-skarn ore bodies. (From Nicola Mining Inc, 2023)

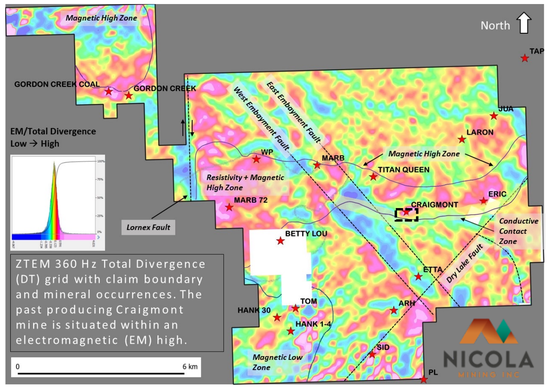


Fig. 3: ZTEM survey map of the New Craigmont Property. Several areas of high resistivity occur at porphyry exploration targets and previously reported copper showings on the property such as MARB 72, Titan Queen, Eric, and the original Craigmont mine site. The targeted high resistivity region of 2023 exploration (Fig. 4) just north of the Craigmont mine is approximately highlighted by the black dashed box. (From Nicola Mining Inc, 2022)

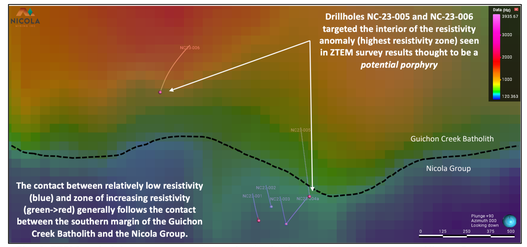
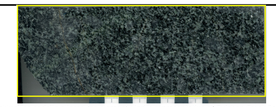
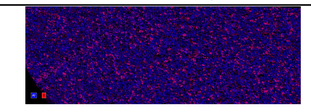
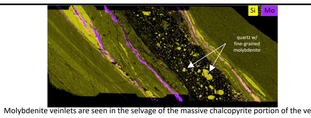
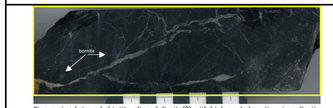
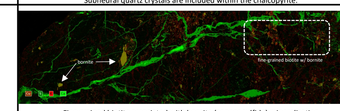
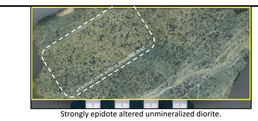
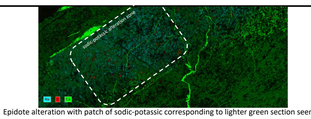
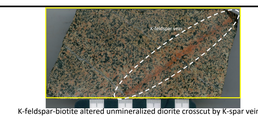
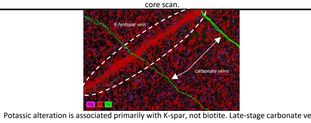


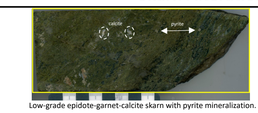
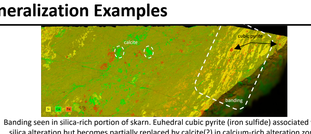
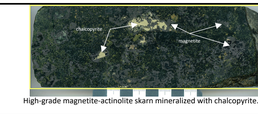
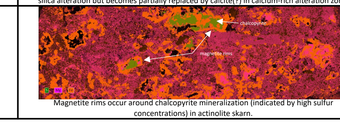
Fig. 4: ZTEM resistivity survey map (plan view) with inferred contact between Nicola Group and Guichon Creek Batholith traced by the dashed line. Porphyry-style alteration and mineralization was discovered after drilling into the resistivity high (drillhole traces for NC-23-005 and NC-23-006 seen above) during the 2023 exploration season (From Nicola Mining Inc, 2023).

Fig. 5: Photograph looking north at the Craigmont open pit mine.

Porphyry Cu Alteration and Mineralization

Drill Core Scans	microXRF Map
 Weakly silica-sericite altered (pale green) diorite representative of Guichon Creek Batholith drilled in 2023.	 Sericite alteration (potassic) in primarily plagioclase (aluminous) groundmass.
 4cm-wide quartz-chalcopyrite-bornite-molybdenite vein hosted in deformed Guichon diorite.	 Molybdenite veinlets are seen in the selvage of the massive chalcopyrite portion of the vein. Subhedral quartz crystals are included within the chalcopyrite.
 Fine-grained strongly biotite-altered diorite(?) with high grade bornite mineralization.	 Fine grained biotite associated with bornite (copper sulfide) mineralization.
 Strongly epidote altered unmineralized diorite.	 Epidote alteration with patch of sodic-potassic corresponding to lighter green section seen in core scan.
 K-feldspar-biotite altered unmineralized diorite crosscut by K-spar vein.	 Potassic alteration is associated primarily with K-spar, not biotite. Late-stage carbonate veins crosscut.

Skarn Alteration and Mineralization Examples

 Low-grade epidote-garnet-calcite skarn with pyrite mineralization.	 Banding seen in silica-rich portion of skarn. Euhedral cubic pyrite (iron sulfide) associated with silica alteration but becomes partially replaced by calcite(?) in calcium-rich alteration zone.
 High-grade magnetite-actinolite skarn mineralized with chalcopyrite.	 Magnetite rims occur around chalcopyrite mineralization (indicated by high sulfur concentrations) in actinolite skarn.

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