Taves R, Ross M, Perrouty S, 2016, Glacial dispersion of indicator minerals and geochemical pathfinders from the Canadian Malartic gold deposit: legacy data and new indicators, Abstract, PDAC-SMC, Toronto, ON

The Canadian Malartic Gold Mine is located in Malartic near Val D'Or, Quebec. It is an open pit mine targeting disseminated low grade native gold found in metasediments and intrusions. This study is part of the larger Footprints Project which will better outline the alteration halo and footprint of the ore deposit in Malartic. The surficial sediment study has three main objectives for detecting the reflection of the bedrock footprint within the overlying sediments. The first objective is to test the validity and quality of the Cadillac Project's (1970s) geochemical data as it is a large database that would be valuable in detecting geochemical pathfinders. However, it was gathered at very regular intervals using a Pionjar drill and has no clay content or sediment descriptions. Secondly, the project will test rutile as an indicator mineral in till and glaciofluvial sediments as a tool to explore for other Malartic-type disseminated gold deposits. Thirdly, an esker and overlying draping fan located down the meltwater gradient from the deposit will be compared to investigate the effect of depositional environments and facies changes on provenance and number of indicator pebbles and minerals. Heavy mineral content, till matrix geochemistry, grain size analysis, hyperspectral imagery of clasts, microprobe analysis of rutile grains, and clast lithologies will be used throughout the project. Initial observations from Pionjar drilling in 2015 shows that till is discontinuous, which suggests a variety of sediments must have been collected to produce the regular 1 km spacing of samples from the Cadillac Project. Only 48% of new drill sites had till in them and glaciolacustrine sediment was seen to directly cover bedrock with no till in some areas. A total of 52% of sites had glaciolacustrine or sandy material in contact with bedrock.

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