Geology Of The Lupin Gold Mine, N.W.T.

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In the Contwoyto Lake area of the N.W.T., gold is associated with Archean iron formations which occur in a thick, complexly interbedded succession of argillites and metagreywackes.

At the Lupin mine, high gold values are restricted to sulphide-rich iron formation which is interbedded with variable proportions of silicate-rich iron formation. The orebody is a Z-shaped structure which plunges steeply to the north, and occurs in an area that is marked by folds of greater than normal amplitude.

The sulphide iron formation is well banded on a millimetre scale. Laminations of hornblende, quartz and pyrrhotite alternate with bands of chert. Arsenopyrite and loellingite occur in the iron formation adjacent to quartz veins. Gold values in the quartz veins are low. Other minerals present in the sulphide iron formation in minor amounts include graphite, ilmenite, chalcopyrite and scheelite. The silicate iron formation is composed of various proportions of grunerite and hornblende, along with quartz and chlorite. Clastic rocks are interbedded throughout the iron formation.

Studies to date indicate that the major Z-shaped structure was produced by isoclinal folding during metamorphism and was further deformed by strike-slip faulting and subsequent granite intrusion in the late Kenoran.