6.2 Geology

6.2.1 Lithology - An east-west trending syncline of Ordovician Moina Sandstone overlain by Gordon Limestone forms the core of the region. (Refer plan D/MZ 01/062). The Moina Sandstone sometimes including the Roland Conglomerate at its base, unconformibly overlies Cambrian Volcanics. These units have been intruded by the Devonian Dolcoath Granite, the apparent source of Sn, W and basemetal mineralization. Tertiary basalt covers most of the area and occassionally has Tertiary gravels and soils at its base.

The Gordon Limestone, is up to 200 m thick at Moina and appears well-bedded with thin, 5 - 10 cm possibly bio-turbated silty bands. Magnesium content is low, being less than 3%. The limestone is probably a tidal flat facies and is separated from the underlying Moina sandstone by a 10 m thick silty transition zone.

The Gordon Limestone and transition zone has been extensively metasomatized/replaced. The metasomatic fluids appear to have been introduced along numerous fine fractures throughout the Moina Sandstone/quartzite. These fractures were probably produced by the intrusion of the granite and/or fluid pressure from the granite. The fractures have various vein fillings consisting of (1) amphibole-biotite-muscovite (2) fluorite-sanidine-adularia-scheelite (3) sanidine-adularia-fluorite-biotite and (4) calcite-amphibole (5) greisen veinlets (6) quartz-wolframite. The fluorite rich veins generally have a magnetite-diopside selvedge. These veins show, in places, selective replacement of the limestone. Massive wrigglite zones can be separated by almost unreplaced beds (generally $<$ 10 cm thick) but joined by fracturing/veining. Replacement in some places obviously proceeds from the veining outwards.

A fairly regular stratigraphic succession is recognized through the main skarn development. From the top down this is relatively unaltered limestone, passing into garnet skarn,