GEOLOGY OF THE TURGEON VOLCANOGENIC CU-ZN DEPOSIT, NORTHERN NEW BRUNSWICK

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The Turgeon volcanogenic copper-zinc deposit is a small massive sulphide deposit hosted by basaltic rocks in the Elmtree Inlier of northern New Brunswick. The basalts occur in the Pointe Verte Formation, of the Ordovician Fournier Group. This formation lies stratigraphically above what is considered to be an "ophiolite" complex. The Pointe Verte Formation consists of interbedded pillow basalts and greywackes that outcrop in the northwestern part of the Inlier. The location of the deposit and its relationship with the ophiolite suggest it is similar to the classic Cyprus-type sulphide deposits found above or near spreading centers.

The Turgeon deposit is owned by Heron Mines Ltd. It consists of two main sulphide occurrences, the Powerline showing and the Beaver Pond showing. In these two areas the ore forms disseminations, veinlets, and fault-bounded lenses, pods, and pipes. The stringer mineralization is hosted by chloritized basalts and represents the stockwork zone. The massive sulphide bodies are affected by later faults which may coincide in part with earlier synvolcanic faults on the seafloor. Banding in the ores parallels the local strike of the units. The main sulphide minerals are pyrite, chalcopyrite, sphalerite, and minor magnetite and pyrrhotite. Associated alteration of host rocks near the mineralized areas is mainly silicification and chloritization.

The rock units in the mine-area consist of basalts, gabbros, interbedded sediments and conglomerate, mafic and felsic dykes, and a later breccia. The sediments overlie and interfinger with the basalts as does, albeit discontinuously, the conglomerate. The gabbroic bodies have similar chemical signatures to the basalts and are considered to be feeders to overlying basalts. The basalts hosting the mineralization are pillowed to massive, amygdaloidal, and locally variolitic. The sequence displays a shallowing-upwards nature, as documented by changes in amygdule content and interpillow matrix. The geochemical nature of the basalts and gabbros suggest they are mainly tholeiitic, and have ocean crust affinities. Thus the deposit's origin can be related to the formation of oceanic crust in a spreading environment.