Preliminary characterization of ore-forming fluids associated with a gold occurrence in northern New Brunswick

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Clarinda is a gold property in northern New Brunswick, approximately 30 km west of Bathurst. This property is located within a fault-bounded wedge and lies within the Jacquet River Syncline of the Chaleur Bay Synclinorium in the northern Appalachian orogen. Clarinda is underlain by Silurian to lower Devonian sedimentary and volcanic rocks, belonging to the Carl Gulch and Benjamin formations, respectively. The gold occurrence was initially discovered in 1997, which lead to extensive work by Slam Exploration Ltd until 2000. Exploration ceased due to a lack of consistent mineralization. The area is poorly exposed and relationships between units are inferred from drill core. Cross sections from the logging of drill holes confirm that shallow-water sedimentary rocks overlie rhyolitic bodies and breccias. This sequence is intruded by mafic dykes of Devonian age, which are the youngest rocks in the area. The area is highly faulted and has undergone multiple phases of deformation. There appears to be a shallowly plunging synclinal structure underlying the property. The highest grade intervals of drill core are found in proximity to mafic dykes and are associated with quartz-carbonate veins and disseminated sulphide minerals. Along with further interpretation of information derived from drill logs, the presence of fluid inclusions in multiple samples has prompted a desire to analyse their potential role in the deposition of anomalous gold. Careful petrographic analysis of the inclusions, as well as microthermometry and raman spectroscopy, will be used to characterize the fluids involved in the formation of the quartz-carbonate veins.

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