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The Samatsum Deposit, Barriere, British Columbia

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The Samatsum deposit is a precious metal rich massive sulphide deposit located at Barriere, B.C. It is hosted by the Upper Paleozoic Eagle Bay Fm, a structurally complex assemblage of metavolcanics and sediments.

The deposit is located at or near the contact between mafic pyroclastics and a sedimentary package consisting of cherts, argillites and siltstones. It is stratabound in nature and lies on the overturned limb of a syncline.

Two major types of mineralization have been identified to date in the SAM deposit. These are: bedded massive to semi massive sulphides with pyrite, sphalerite, tetrahedrite, chalcopyrite and galena; and massive galena, sphalerite, tetrahedrite and chalcopyrite.

The deposit appears to represent a syngenetic volcanogenic deposit that has been subjected to later structural remobilization and precious metal enrichment.

Bodies of feldspar porphyry which are considered to be co-magmatic with the rhyolites intrude the sequence. They are characterized chemically by low K₂O and high Na₂O contents. Northwest trending mafic dykes approximately parallel the stratigraphy and are particularly common near the ore horizons. The massive sulphide-sulphate mineralization occurs as two or more steeply dipping stratigraphically stacked horizons within the lower one third of the rhyolite unit. The West Zone represents is the stratigraphically lower mineralized horizon and hosts two massive sulphide lenses. The Main Zone lies 40 to 180 feet stratigraphically above the West Zone.

The sulphide mineralization consists of pyrite-sphalerite-chalcopryrite-galena (tetrahedrite) and bornite. Native gold and silver have also been identified. The average iron content of the ore lenses is low, varying from 5% to 15% and is higher on the West Zone horizon. The main gangue component of much of the mineralization is sulphate in the form of gypsum, anhydrite and barite. Silica and sericite can be significant components. Mineralization on the West Zone horizon has higher copper and iron values than the Main Zone lenses which are barite and precious metal rich.

Silica, sericite is the principal alteration associated with the Blue Moon deposits. The Blue Moon rocks have been subjected to regional dynamothermal metamorphism. the apparent metamorphic grade is lower greenschist.

Current reserves of 4.1 million tons grading 1.18% Cu, 0.44% Pb, 9.57% Zn, 2.53 oz/t Ag and 0.061 oz/t Au make Blue Moon the largest known volcanogenic hosted massive sulphide deposit in the Foothills Belt.

MINERAL PROCESSING SESSION

Chairman: Kenneth L. Clifford, Chief Metallurgist, Chevron Resources Company