Samatosum

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M E G T A L K

Date: January 13, 1988
Title: Geology and Mineralization of the SAMATOSUM (REA GOLD) Deposit, Adams Plateau, BC
Speaker: Ian Pirie, Minnova Inc., Vancouver
Introduction: Trygve Hoy, BCGS
Thanks: Vic Preto, BCGS

Location and Access:

The Samatosum deposit is located on Adams Plateau about 65 km north of Kamloops. Access is by 4 wheel drive on existing roads.

Geography:

The deposit lies within peneplain topography consisting of three levels. Maximum height is 1850m on Samatosum Mountain. The Samatosum deposit is on the NW slope of Samatosum Mtn. at 1370m elevation.

History:

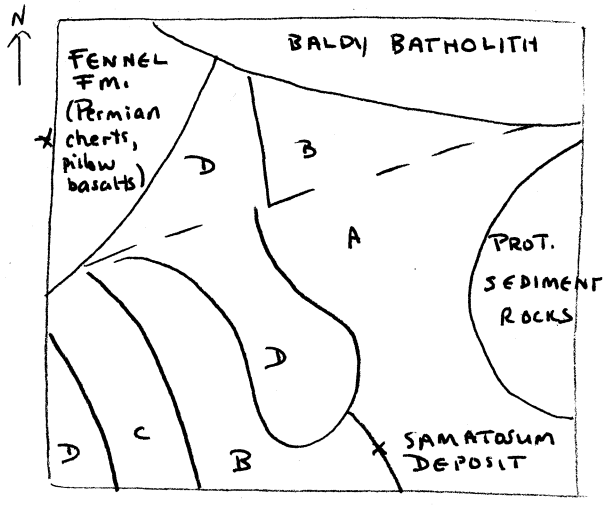
1983 - first massive sulphide showing found by prospector Al Hilton - called the Discovery Zone with grades of 1.32 opt Au, 715 opt Ag, 11% As. Optioned to Rea Gold.
- Early shallow drilling was not very successful.
- Rea Gold optioned to Corporation Falconbridge (now Minnova) in Nov. '83 and it was returned in '85.
- Samatosum Deposit discovered June, 1986 by Minnova when 64th hole drilled intersected 0.9m of 9.3% Cu, 7.8% Zn, 6.9% Pb, 2700 g/t Ag and 3.8 g/t Au.

Regional Geology:

- Deposit is hosted by rocks of the Eagle Bay Formation (Devonian?)
- Mixed package of mafic to felsic volcanic rocks and both carbonates and clastic sedimentary rocks.
- Younging to the west.
- Eagle Bay rocks have undergone several phases of folding and faulting which has caused the stratigraphy to be overturned.
- The Eagle Bay Formation has been intruded by granite and quartz monzonite of the Cretaceous Baldy Batholith (see figure 1) and overlain by later volcanics (Tertiary to Pleistocene).

Figure 1:

Regional Geology



ROCK GROUPS

A mafic volcanics (pyroclastics, flows, interbedded with limestones)

B limestones, cherts and argillite/wackes, * fine grained conglomerates

C clastic sediments

D argillites

* Not certain of accuracy - approximate rock groups

Structure:

- Folding and faulting has formed Rea Gold lenses and Samatosum (2 deposits).
- Intense deformation - typical of area - has produced tight folds.
- The units strike northwest-southeast and dip 30° to 50°NE
- Axial plane shearing has caused stacking of the stratigraphic units.
- Graben (boundary) fault (Johnson Creek) - channelway for mineralizing fluids.

Local Geology:

- Deposit is located at the contact between the mafic volcanic rocks and a sedimentary package consisting of cherts, argillites and sandstones.
- Deposit seems to lie on the easterly overturned limb of a northwest plunging syncline.
- Uplift (topographic high) at contact between mafic volcanics and sediments.
- Deposit is stratabound in nature.
- Strike length is 450m, dips 30 - 45° NE, dip extends to 150m, thickness is from 0.1m to 12m.

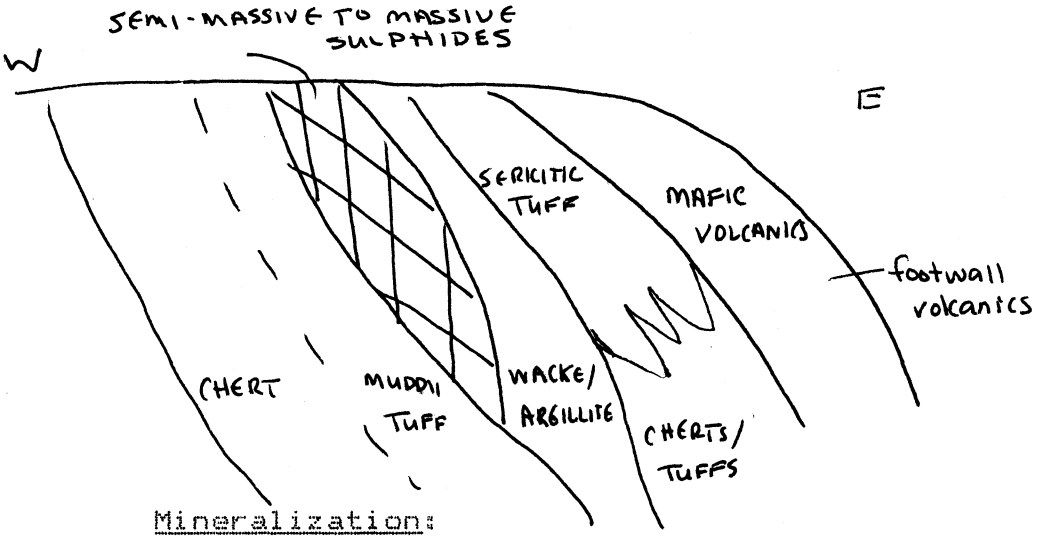
Rock types

- mafic pyroclastics
- sericitic tuff, minor chert (top of mafic pile)
- minor chert/tuff - chert is locally brecciated, sericitic & interbedded with argillite
- muddy tuff
- andesite (at Discovery zone, not Samatosum)

- Same package of rocks repeated by folding (see figure 2).
- Sericitic tuff is a very altered basalt but is mistaken as altered rhyolite.

Figure 2:

Plan Section 98 + 50 NW



Mineralization:

-Predominant minerals are tetrahedrite, sphalerite, and galena with minor chalcopyrite.
- Most of the silver (and gold) is found in the tetrahedrite (freibergite).
- Also bournonite, chalcocite, arsenopyrite and unidentified sulfosalt(s).
- Pyrite forms the main gangue mineral and surrounds the deposit.
- High grade barite associated with some high grade pods (Rea Gold).
- Mineralization is present as two types:

1) Bedded massive to semi-massive sulphides with pyrite, sphalerite, tetrahedrite, chalcopyrite and galena.
- Predominantly at southern end of deposit and at depth.
- Syngenetic volcanic massive sulphide mineralization on top of mafic volcanic sequence deposited in a tuffaceous sequence as pods or lenses in a submarine basin.
- Silica flooded zones make up lower grade (8 to 30 opt) of Ag. Vuggy quartz present.

2) Massive galena, sphalerite, tetrahedrite, chalcopyrite (and barite) in quartz veins.
- Later quartz veins - white bull quartz - contain mineralization which was remobilized.
- Generally makes up higher grade (700-30,000 g/t Ag) part of deposit. This type of mineralization is near surface and open pittable (up dip, north end).

- Type 2 is often superimposed on type 1.
- At the surface malachite and azurite are the only indicators of ore. Mineralization is covered by 5 to 6 feet of overburden.
-Must remove 5 million tons of waste to get to 350,000 tons of ore (i.e. 15:1 waste to ore stripping ratio).

Reserves:

- 600,000 tonnes @ 100 GPT Ag, 1.8 GPT Au, 1.2% Cu, 3.5% Zn, 1.7% Pb @ 250 GPT Ag cut off, 2m wide mining width and no other dilution.

Geophysics:

- Good MAX - MIN conductor
- Indicates graphitic argillite sits within 50' of mineralization.

Geochemistry:

- Soil Anomalies - Pb-Zn-Ag (i.e. Samatosum) is distinctly different than Au-As (i.e. Rea Gold - Discovery Zone).

Genesis:

- Thought to be syngenetic volcanogenic deposit
- Subjected to later structural deformation and subsequent remobilization and precious metal enrichment.
- Deformation in late Triassic.
- Volcanic island arc tectonic setting (mature island arc [Trygve Hoy]).
- Mineralizing fluids welled up through graben fault and deposited predominantly pyrite in the beginning. As temperature increased, the concentration of the solution increased the precious metal concentration (silica -- chert, later silica flooding). As the system matured and early sulphides buried, pyrite was replaced by tetrahedrite and sphalerite.
- Much later deformation remobilized sulphides into quartz veins, with no apparent addition of metals (type 2).
- Continuous tuff deposition created 'pods' or 'lenses' rather than massive sulphides (i.e. formed in muds rather than on sea floor)

Isotope Data:

- Mineralization = Devonian
- Deformation (remobilization with no addition of Pb) = Triassic.

Questions:

1) Is the Ag cut off straight Ag or Ag equivalent? - Straight Ag @ 250 g/t.

2) Does the chert unit have any background Ag? - Nothing but a few 100 ppb kicks.

Notes by Tom Schroeter, Cathy Lund