

**Paper No. 4 — 4:00**

**Sulphurets — An Emerging Gold-Silver Camp.**

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The Sulphurets precious metal deposits are located 56 km northeast of Stewart, British Columbia. Current exploration is being conducted by the Sulphurets Joint Venture composed of Newhawk Gold Mines Ltd. (30% and operator), Lacana Mining Corp. (30%) and Granduc Mines Ltd. (40%).

Numerous gold-silver occurrences lie within the Unuk River Formation of matrix-supported lapilli tuffs along zones of pyrite-sericite alteration. Major exploration is being carried out in the Brucejack Area, where geological reserves were quoted in January 1987 at 1 584 145 tons grading 0.336 oz gold/ton and 22.86 oz silver/ton. The major zone in the Brucejack Area is the West Zone, where mineralization is localized within a 15 m to 25 m wide silicified and stockworked zone containing electrum, argentite, pyrite, galena, sphalerite, pyrrargyrite and native gold.

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**Paper No. 5 — 4:30**

**Wallrock Alteration at the Sulphurets Gold-Silver Property, British Columbia.**

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Sulphurets is one of numerous silver-gold deposits in the Stewart area of British Columbia. The quartz veins and stockworks are hosted by altered volcanic and sedimentary rocks of the Hazelton Group. Alteration patterns around these veins can be used to assist explorationists.

The quartz veins in the West and Shore zones typically contain tetrahedrite, electrum, pyrrargyrite, argentite, galena, sphalerite and sometimes barite. Gold occurs in a free state and as inclusions in pyrite. Primary rock textures are not visible in the strongly altered wall rock. Immediately adjacent to the mineralized zones, the wall rock has a gray, siliceous appearance and contains up to 7% pyrite. Further away from the mineralized veins there is sericite alteration with quartz veinlets. Abundant disseminated pyrite (up to 20%) is common in this zone and forms a "halo" around the veins. At greater distances from the vein, sericite and less than 10% disseminated pyrite are the principal alteration minerals. Minor carbonate is found throughout the altered wall rock.

Anomalous values of Ag, As, Au, Ba, Hg, Pb, S, Sb, Te, Ti and Zn are common in the altered wall rock. Ag, As, Pb, Sb, and Zn concentrations correlate posi-

tively with high Au values. High Ba and Ti contents define larger zones which generally envelope the silver-gold veins. Anomalous sulphur values in the pyrite "halo" correlate with high Hg and Te. All rocks within the alteration envelope are strongly depleted in  $\text{Na}_2\text{O}$  and enriched in volatiles.

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**Paper No. 6 — 2:00**

**Solutions to Operating Problems in the Mining Industry**