## DEVELOPING THE POLARIS TAKU GOLD DEPOSIT

## Christian Marriott

The Polaris-Taku property consists of 61 contiguous Crown Granted Mineral claims and one modified grid claim covering an area of approximately 2,100 acres. The property is located in northwestern British Columbia, 40 miles northeast of Juneau, Alaska and straddles the Tulsequah River Valley near the junction of the Taku River which empties into the Pacific Ocean 13 miles southeast of Juneau.

The property was staked in 1929 when gold was discovered. Mining was initiated in late 1937 and production continued until World War II caused labour shortages in 1942, resulting in the closure of the mine. Mining resumed in 1946 and continued until 1951. Production totalled approximately 231,000 ounces of gold from 760,000 tons of ore for an average recovered grade of 0.30 oz Au/t.

Cominco leased the mill complex from 1951 to 1957 to process zinc-lead ore from its nearby Tulsequah Chief and Big Bull mines. The mill equipment was dismantled and sold off in the 1970s. No exploration or development work was done on the property after the departure of Cominco until 1988 when the property was optioned to Suntac. Suntac has been conducting exploration programs on the property every year since then. These programs have involved ground geophysics, soil geochemistry, surface diamond drilling and underground rehabilitation. Forty-seven holes were completed between 1988 and 1991. Total footage for the holes completed amounted to 38,152 ft. 15 holes have been completed for a total depth of 14,500 ft. during the summer 1992 drilling program.

In 1991 Montgomery Consultants Ltd. (Montgomery) estimated a geological resource totalling 2.225 million tons, undiluted, grading 0.43 oz Au/t using geostatistical methods. Montgomery's geological resource estimate was calculated using a 0.25 oz Au/t cut-off and included 333,000 tons grading 0.437 oz Au/t classified as probable and 1,892,000 tons at a grade of 0.432 oz Au/t categorized as possible.

The Tulsequah River area is underlain by a series of volcanic and sedimentary rocks belonging to the Stuhini Group of late Paleozoic or Triassic age. The stratigraphic section consists of a series of quartzites and schists overlain by limestone and a thick sequence of volcanics. The volcanic sequence consists of andesitic to basaltic pyroclastics and massive flows and includes a significant component of sediments, including argillites, graphitic argillites and greywackes. This sequence is intruded by ultramafics and felsite dikes. The volcanic series hosts the gold mineralization on the Polaris-Taku property and the Tulsequah Chief and Big Bull volcanogenic massive sulphide deposits. The massive sulphide deposits are locally associated with rhyolites.

The ore bearing structures at Polaris-Taku are third and fourth order splays off the Tulsequah River Shear zone, a transtensional mega-shear or wrench fault. The mine area lies within a structure defined by Southern (1971) as a northwesterly trending synclinorium. The hinge line of this structure is thought to be within the Tulsequah River valley.

The Polaris-Taku mine is situated within a structurally bounded zone within the synclinorium called the Mine Wedge. The Wedge is defined as a northwest-southeast trending slice of rock closing to the northwest. Two steeply dipping faults form the limits to the Wedge. The Limestone fault or shear zone is its limit to the southwest while the Whitewater fault zone is the Wedge's limit to the northeast. All mining to date has been confined within this wedge shaped structure, although mineralized structures extend beyond the limits of the wedge across the Whitewater and Limestone fault zones.

A recent study of the structure of the Mine Wedge interpreted the Mine Wedge as a major shear zone with mineralization following reidel shears and tension fractures within monoclinal stratigraphy.

The "AB" vein shear strikes NW-SE and is the main controlling structure. Where the N-S striking "Y" vein intersected the "AB" structure, dilation zones occur. The curvilinear structure joining the "Y" and "AB" veins is called the "C" vein junction arc. These junction arcs have a periodicity of @1000-1100 ft. intervals along the "AB" vein shear.

Recent drilling has discovered the new "AB" vein extension. From the three intersections to date it is clear that this system is blossoming to the south-east and is expected to lead us into the next junction arc.

## **GEOLOGICAL SOCIETY OF THE CIM**

÷

## SECOND ANNUAL FIELD CONFERENCE

SEPTEMBER 28, 29, 1992

KAMLOOPS, B.C.

**ABSTRACTS OF TECHNICAL PRESENTATIONS**