

THE PROPERTYLocation and Access

The leases are located near the mouth of Creek, on the west side of the lower Lake. The Lakes in turn can be reached via Highway 27, a gravel road, about 100 miles north of Fort St. James B.C. . The site, 1½ miles west of Highway 27, can be reached by 4 wheel drive road. Fixed wing aircraft are able to land in the lower Lake, or alternatively, helicopters can land at the site.

Previous work and history

The Creek area, although not worked until the early 1930's, may be considered part of the old Germanson-Manson gold camp, the placer gold being first discovered in 1870. Between 1870 and the early 1890's the area was actively worked. However the emphasis was placed on recovering the placer gold found within the existing creeks and not on the extensive areas of the gold rich glacial gravels. It is likely that toward the end of the 1880's and early 1890's, many placer miners, having worked out areas of easy gold recovery in the Manson area left for the Yukon, where the Klondike appeared more promising. In fact migration from the Manson area started considerably earlier, during the mid 1870's to the Cassiar gold fields farther north. A renewed interest in the area took hold in the early 1900's, where hydraulicing, under the auspices of various mining companies achieved large scale proportions. Today derelict machinery, miles of hand dug flumes and rotting sluice boxes dot the country side. Today, individual operators with machinery are able to claim a profit, but they continue to work ground which was part of the original workings that date back to the turn of the century.

Creek on the other hand is still essentially untouched, and because of its location contains other minerals within its gravels not normally found elsewhere. The Creek area yielded enough gold during the Great Depression to sufficiently support the late Joe Michaud, Pete Peterson, Frank Robinson & family, Ernie Floyd and George Eys; all of which worked the ground by hand.

In 1960 and 1981 Mr. _____ succeeded in acquiring all the ground in the _____ Creek area that has proven potential. Test pits were dug throughout the area, and in the late 1960's a total of 93 oz. was recovered in less than two months work. In the fall of 1970 four days of mechanised work produced 6½ oz. of coarse gold, the remaining fine gold and black sand concentrate, 100 pounds in all, was sent to Delta Smelting at Richmond B.C. for final milling. The throughput for the above approximated 368 yards of paystreak.

It wasn't until 1965 when abundant quantities of Scheelite granules were discovered in the concentrate. Soon afterward, Mr. _____ incorporated Northern Tungsten Mines Ltd to carry out exploration of properties in the immediate area. During the 1972 field season, Mr. Bob Mulligan of the Geological Survey of Canada visited _____ Creek to investigate the Scheelite occurrence and appraise the property's Tungsten potential. Samples of the concentrate were removed for analysis. The following year, Mr. Mulligan returned for further samples, and at that time commented on the extraordinarily high content Cassiterite content, the existence of which had hitherto been unknown in the _____ Creek gravels. In addition, it was the opinion of Mr. Mulligan that the _____ Creek gravels contained the highest concentration of Scheelite and Cassiterite found anywhere in Canada.

Geology

General

The placer leases lie within the Omineca tectonic belt which is characterised by an interfingering of sediments derived from the east and volcanics from the west. Areas of high regional metamorphic grade occur as well as numerous plutons.

The property is more specifically situated at the eastern edge of an intermediate to felsic pluton reported to be of Cretaceous age. The pluton has intruded a series of sediments considered to be of Mississippian age that were deposited along the western edge of an accreting continent. The Manson Fault Zone, a significant crustal break, passes just west of _____ Lake. Glacial deposits of boulder clay and accompanying gravels, sands and silts overlie much of the bedrock at lower elevations. Thickness of the overlying glacial deposit varies in accordance with the underlying ancient topography.

High banks of the boulder clay occur on Germanson and Manson Creeks, and in both cases are underlain by fluvio-glacial gravels which are often gold bearing.

Property Geology

The property is situated at the foot of the east flank of Mountain, an intrusive of felsic composition which has intruded regionally metamorphosed argillaceous cherts, siltstones and limestones. Metamorphism of the sediments is moderate to high grade, the majority of the sediments being biotite and sericite schists with minor paragneiss. The more gneissic components are generally near the granite contact, which is high on the mountain flank, and suggests that granitisation of the sediment has taken place.

Glacial deposits of boulder clay, and accompanying gravels, sands and silts cover the property, most of which lie between the 3100' and 3000 ft level. The lake level is \pm 2840 ft. . The distribution of the glacial debris is such that the largest boulders, many of which weigh from 10 to 30 tons, occupy what once was the centre of a torrential waterway. This waterway flowed from highlands to the northwest and carried with it gold which may have originally been part of the Manson placer deposits. Moving laterally from the centre of the ancient channelway, the boulders reduce in size, although a build up of boulders occur on the east flank of Mountain. Several raised beaches may be found up slope and ultimately, at the 3600 ft level, fan out into a deposit of fine silt and sand.

Mineralisation

GENERAL

Mineralisation within the gravels which occupy the centre of the ancient waterway, hence the coarsest boulder fraction, is heaviest when confined to an iron-rich partially cemented section known as the paystreak. The paystreak varies in thickness from 2 to 6 ft. , and is thickest at the centre of the ancient waterway. Minerals found within the paystreak include gold, scheelite, cassiterite, magnetite, pyrite, garnet, zircon, quartz and mica. In addition, copper and silver has been reported. The minerals of economic significance include the first three, although should enough magnetite be recovered, it too will be

deemed economic and marketed. A bulk sample of the concentrate will undergo petrographic analysis so as to identify additional economic minerals if present. Lateral movement, away from the waterway's centre, results in a thinning of the paystreak so that fine gold predominates.

Gold

Gold occurs as coarse nuggets, flattened grains and scales. The nuggets are generally rounded or of irregular shape and often weigh up to several penny weight in size; 20 penny weight equals 1 ounce. The colour is of a good gold colour, suggesting little if any substitution for silver or copper.

Scheelite

Granules of Scheelite ranging in size from less than 1/16 inch to 1/2 inch in size are found in abundance within the concentrate. The colour ranges from white to cream-brown and fluoresces a bright bluish-white, suggesting little contamination if any from molybdenum substitution.

Cassiterite

Crystals and nodules of cassiterite have been found in abundance by the Geological Survey of Canada, some crystals of which were reported to be over 1 inch in length.

It must be noted that the association of coarse Scheelite and crystalline Cassiterite is strong evidence that the source can not be very far. Indeed, examination of concentrates eight kms upstream ^{along} from the original waterway revealed little if any Scheelite and no Cassiterite. The fact that Cassiterite crystals were found intact and of such large size would suggest that the source area be close, within a km or two at the most. In addition, while in the employ of Placer Development Ltd., I undertook an examination of a prospect within the immediate area and discovered evidence that a host capable of carrying Scheelite and Cassiterite exists. The type of host, called a greisen, also carries in association with Scheelite and Cassiterite; Wolframite another important ore of Tungsten. Many other minerals of economic worth are associated with greisens, and will be looked for in the concentrates.

Future objectives

The 1984 season will see an expansion of the existing facilities to include a mill designed to recover the Tin, Tungsten and remaining Gold from the concentrate. Efforts will be made to design the mill so as to employ gravity methods for recovery. Equipment likely to be used would include shaking tables, classifiers, centrifuges, magnetic separators, and the like. It is possible that a small cyanide circuit would be installed to recover fine gold if gravitational recoveries are low. It must be noted that no other operation exists in the area where concentrate is treated for minerals other than Gold, indeed it is likely that this operation, treating Tin, Tungsten and Gold will be the only mill of its type in Canada. Other placer operators within the area will be approached for custom milling of their concentrate.

The long term objective includes the exploration for and discovery of the source area of the Tin and Tungsten bearing minerals. The objective being to put into production, mines for their eventual extraction. In addition, other placer ground will be sought, particularly areas which have proven to be a source of placer platinum and associated minerals.

Preproduction Plans and Layout (see map and figure 1)

The operation will consist of 1 D-8 cat (A), 1 loader of 2½ yard capacity (B) and 1 dump truck of 12 - 14 yards capacity (C). These will be used to move the boulders, break up the ground, load the gravel and carry it to the washing plant (D) respectively. The washing plant will be located approximately 800 ft. from the loading site (E), perched on the side of a settling pond (F). The washing plant will consist of 1 hopper 16 - 18 yards capacity (G), fitted with a hydraulically operated grizzly (H) capable of rejecting oversize boulders too large to be accomodated by the washing plant. A shuffleboard (I) run by a gasoline engine will control the feeding of the gravel from the hopper to the dumping box (J). The dumping box is the site where pressurised water is injected (K) so that the gravel may be thoroughly washed. The water-mud-gravel slurry will then pass through a section of sluice box (L) containing large nugget traps (M). From this initial section of the washing plant, made entirely of heavy gauge steel plate, the slurry passes over a series of assorted riffles and screens (N) & (O) designed to collect the concentrate. The length of the sluice box will be about 60 feet. A diesel pump (P) fitted with about 1000 ft. of 8 in. high pressure pipe (Q) will carry water from Boulder Creek (R) to the washing plant.

Surface development will include settling pond preparation, road and bridge building and upgrading. The site of the settling pond is a natural ground depression called a kettle, ideally suited and located to our needs. Some work will be needed in order to bring it up to specifications, i.e. the building of a partition (S) to separate tailings from that portion into which the water will drain. In addition, the area will be logged off and the trees disposed of.

Existing buildings will have to be modified to accomodate and service employees while working on the site.