
SUMMARY REPORT ON MINERAL PROPERTIES.

INTRODUCTION.

The company holds by location three groups of mineral claims in the Omineca Mining Division north of Fort St. James, B.C.

These are the LAY GROUP which is a gold-silver prospect near Aiken Lake, the JIM GROUP which is a silver prospect on Swannell River, and the RUBY GROUP a silver prospect north of Uslika Lake.

All three properties are readily accessible by highway, tractor road and short trails, the most remote being about 48 miles from the nearest highway. Access roads for development and production purposes would require light construction only, and would not be a major problem. The ores are of simple composition and would produce a high grade concentrate that could be shipped economically over present roads.

LAY GROUP.

PROPERTY AND LOCATION.

The property is on Lay Creek 4 miles northwest of Aiken Lake and comprises a block of 40 mineral claims which cover a ridge on the west flank of the valley between elevations 4200 and 6500 feet. Access is either by aircraft 140 miles from Fort St. James, or 230 miles by road of which 182 miles is good highway and 48 miles is tractor road which can be improved for truck haulage at reasonable cost. A bridge would be required across Mesilinka River. Good campsites, timber and water are available close to the proposed workings.

MINERAL SHOWINGS.

The showings lie along steep, rocky, treeless slopes between elevations 5000 and 6200 feet within a rusty weathering, pyritized area about 3000 feet square. The mineral deposits, which carry values in gold and silver, consist of sub-parallel, steeply dipping shear zones in diorite porphyry and related intrusive rocks. Two such zones are presently known and a third one is indicated.

No.1 Zone was explored in previous years by a short adit tunnel at elevation 5200 feet which exposes a sheared zone about 50 feet wide, containing abundant finegrained pyrite. The average of eight channel samples gave gold values of 0.42 oz. (\$15.80) across a 10 ft. width. Silver values are present but no assays available. A series of 5 ft. channel samples across the remaining 40 feet of the sheared zone, gave gold assays of from 0.02 to 0.10 oz. A surface cut 70 feet vertically above the tunnel intersection, gave gold assay of 0.30 oz. across 15 feet on what is believed to be the same zone, with lower values in the adjoining rock. The zone outcrops for less than 40 feet and goes under talus cover in both strike directions.

No.2 Zone outcrops at elevation 5400 feet, about 1200 feet west of the adit tunnel and has a presently indicated strike length of 550 feet, of which about two thirds is under talus cover. It has an indicated width of from 30 to 50 feet but has not been systematically sampled as yet. Five chip samples taken at the most easterly exposure gave an average assay of 0.21 oz. gold and 9.57 oz. silver (combined values \$21.10) across 21 feet. The exposed width of the zone at this point is 30 feet and as both hanging and footwall are covered up, the total width may be somewhat greater. One chip sample at the most westerly exposure 550 feet distant, gave an assay of 0.38 oz. gold and 14.3 oz. silver (combined values \$34.05) across 10 feet near the central part of the zone. The total width of the mineralized zone at this point is 55 feet.

A third zone is indicated 300 feet to the south and outcrops at elevation 5700 feet. It appears to be from 10 to 20 feet wide and is known to carry gold values but has not been further investigated as yet.

GEOLOGY.

The claims are underlain by andesite and intercalated thin beds of tuff, argillite and impure limestone of the Takla Group which show northerly strike with moderate westerly dips. In the area of the showings these rocks are cut by bodies of Omineca intrusions consisting mainly of grey-green diorite porphyry and grey feldspar porphyry. The intrusive rocks are rusty weathering and contain varying amounts of finegrained pyrite over an area about 3000 feet long and 2500 feet wide. Four sill-like bodies of porphyritic diorite are heavily pyritized and form northwesterly trending bands up to 400 feet wide with indefinite margins.

The two shear zones which carry gold and silver values, have east-west strikes with northerly dips of about 80 degrees, and cut across all rock types without much change in character and would therefore appear to be one of the latest structures to develop.

No.1 zone, where exposed in the adit tunnel and surface cut, lies in porphyritic diorite which within the zone has been intensely sheared and altered to a bleached, moderately soft, talcose rock composed essentially of sericite, chlorite and carbonates. It shows a well developed foliation parallel to the walls. Later movements have superimposed a system of diagonal, closely spaced cross fractures which, particularly in the surface cut, produce a notable rhombic or "diamond" shaped type of fragments. The rocks within the shear zone contain abundant finegrained pyrite, but so does the unsheared porphyry and there is in fact little difference in mineralization between the two, as seen in hand specimens except that the shear zone material has a distinct blueish color while the porphyry is grey-green. Thin sections show that the shear zone rock contains small amounts of extremely finegrained galena, chalcopyrite and tetrahedrite in addition to wavy bands of coarser pyrite. The walls of the zone show no selvage or gouge but are otherwise well defined by a sharp contact with unsheared and much harder porphyry.

The 10 ft. width of ore in the adit workings referred to previously, occurs towards the footwall side of the zone and appears to coincide with the more intensely sheared part of it. Values are present in the remaining 40 ft. width however, and the actual mining width would therefore be a matter of "assay walls" or economic limits rather than geologic boundaries. Hence it is conceivable that No.1 Zone could show ore widths considerably greater than 10 feet.

No.2 Zone lies in feldspar porphyry, at least at the most easterly outcrop and does not at first appear to be so intensely sheared. The outcrop is solid and has been worn smooth by slide rock from gullies above. There is no surface oxidation. The rock shows a grey to blueish colored aphanitic groundmass with thin, closely spaced ribbon-like bands of pyrite, specks of carbonates, a few vugs and some cross fractures. Thin sections show a high degree of shearing, alteration and bleaching with a well developed schistose, almost foliated structure which was followed by silicification and fracturing. Cleavage planes show a selvage of sericite, chlorite and specks of mariposite. Finegrained pyrite is abundant, some of it is coarser and occurs as irregular pods and in cross fractures. Beaded strings of very finegrained galena and tetrahedrite occur in and along the pyrite bands, and in cross fractures. The apparent width of this zone at the most easterly exposure is 30 feet. The hanging wall is covered by talus and the footwall by loose overhang so it is possible the total width is closer to 40 feet. The zone goes under talus for about 400 feet and then outcrops for about 100 feet across a rocky shoulder. It is here about 50 feet wide, strongly oxidized and shows a sheeted structure with ribs of blueish-white, aphanitic rock interspaced with layers of friable, vuggy boxwork showing casts and remnants of pyrite. This outcrop has escaped abrasion by slide rock and consequently oxidation and leaching have removed much of the massive sulfide bands. The ribs contain less abundant pyrite,

have not been leached, and a chip sample across 10 feet near the central part gave good gold and silver values, as previously referred to. The remaining 40 feet width of the zone has the same appearance as the sample section so there is a good chance of much wider ore here. The zone then disappears under talus and no further outcrop was seen.

The third zone lies higher up in a cirque where the rocks are mainly green, porphyritic andesite and is similar to the other two, in that it shows intense shearing and bleaching with abundant pyrite, in part oxidized and leached, in a light-colored, talcose groundmass. It has not been investigated but gold values are known to be present.

CONCLUSIONS.

Preliminary prospecting and investigation of this property has indicated combined gold and silver values of \$15.80 and \$34.05 across 10 feet and \$21.10 across 21 feet in two shear zones, with excellent chances of much greater widths. A length of at least 550 feet is indicated for one zone, and I think chances for additional lengths are very good because structures of this magnitude would probably be quite persistent, at least within the area of the intrusive rocks, which extend well over 2000 feet along the strike direction of the shears. The ore showings outcrop over a vertical range of 500 feet and for this type of deposits, chances for deep ore seem equally good.

This is a promising prospect and there are several factors which justify an extensive exploration program.

1. There are indications of commercial ore in structures that could contain a large tonnage.
2. The values are entirely in gold and silver with only trace amounts of interfering base metal sulfides, and could very probably be recovered as bullion by cyanidation.
3. Mining costs would be low because the widths are good and the deposits can be developed by an adit tunnel probably not over 2000 feet long, giving backs of 1000 feet.
4. As there would be no concentrates to ship out, transportation costs would not be important. 48 miles of light construction would bring the present highway to the property.

An exploration program is therefore recommended, to consist of stripping and blasting cuts along the outcrops of No.2 Zone for thorough sampling. A Packsack drill would be used, for core sampling

of places where stripping would not be feasible, and below oxidized outcrops.

The tunnel workings would be cleaned out and re-sampled.

It is doubtful if stripping or Packsack drilling would be feasible along No.1 Zone because of loose sand and slide rock, and diamond drilling could commence here at an early stage, later to continue along No.2 Zone. A minimum of 3000 feet of core drilling should be provided for.

A geophysical survey by a suitable method might give valuable information before deeper drilling is undertaken along the lower, talus covered slopes. The job could be done in a week because there is no line cutting to be done.

This initial program is estimated to cost about \$50,000.-

JIM GROUP.

PROPERTY AND LOCATION.

The property consists of 4 mineral claims which are located close to Swannell River opposite Mnt. Lay. It is reached by plane to a lake 4 miles southeast and then by a somewhat longer trail. An exploration party can be put right on the property by helicopter. It would take about 12 miles of road to connect with the proposed Aiken Lake road and the distance by highway to Fort St. James would then be about 216 miles. The claims straddle a deep canyon in which the mineral showings are exposed. The elevation is about 3800 feet and the country is timbered, in part burnt over.

MINERAL SHOWINGS.

The property covers one or more fracture zones in precambrian quartzites containing narrow quartz veins with high silver values in the form of polybasite and ruby silver. One such zone is known and another indicated by float. The zone, on which some preliminary prospecting was done in 1962, outcrops in a deep canyon, is 130 feet wide and contains six sub-parallel, spaced, quartz-filled fractures which are from $1\frac{1}{2}$ to 14 inches wide. The most important vein is about 12 inches wide and is exposed for a length of about 220 feet. It goes under a rock slide at the north end and under a waterfall at the south end.

Two samples were taken across the best mineralized part, one at each end and assay 0.06 oz. gold and 386.7 oz. silver across 6 inches at the north end, and 0.05 oz. gold and 216.3 oz. silver across 6 inches at the south end. The vein was inaccessible for sampling of intermediate points at the time, but could be seen to be continuous along strike. A parallel vein 30 feet east, has the same length and was sampled at the north end showing 0.01 oz. gold and 24.2 oz. silver across 12 inches, and at the south end showing 0.02 oz. gold and 34.3 oz. silver across 4 inches, the remaining 8 inch width being under water and inaccessible. There are four additional veins from $1\frac{1}{2}$ to 10 inches wide which are either inaccessible for sampling or show silver values of less than 10 ounces.

FLOAT ORE.

Veins of a slightly different type are indicated to occur elsewhere on the property by a train of ore float. A number of these were sampled. Taking the smallest dimension of the float boulder as a measure of the indicated width, the following silver assays were obtained:

211.3 oz. across 3 inches, 56.5 oz. across 7 inches, 276.1 oz. across 9 inches, 330.2 oz. across 14 inches, 17.4 oz. across 16 inches and 102.2 oz. across $2\frac{1}{2}$ feet.

GEOLOGY.

The country rocks are quartzites and quartz-mica schists of the late precambrian Tenakihi Group which strike northwesterly and locally show moderate southwesterly dips. The bedded rocks contain sill-like bodies of buff weathering granophyre intrusives, in part over 80 feet thick. The deposits lie on the east flank of a major anticline within an area of anomalous cross folds, and less than a quarter mile from the nose of a small stock of quartz-feldspar porphyry. Quartz veins are numerous in this area but only those that show northeasterly strikes and southeasterly dips contain appreciable silver values. The veins are quartz-filled fractures cutting transversely across the bedded rocks and intrusive sills. They are breccia veins with inclusions of wall rock, in part vuggy and contain ruby silver, polybasite and freibergite with minor pyrite and sphalerite. The veins are part of a fracture zone which is at least 130 feet wide and can best be described as a stockwork. They show variations in strike of up to 30 degrees and in dip of up to 10 degrees, and it is conceivable that they may join or widen along strike or dip and make ore shoots.

CONCLUSIONS.

The property contains narrow but high grade silver bearing veins which are part of a wide fracture zone and could produce important ore shoots in areas of more intense fracturing.

Ore float indicate that widths up to 3 feet of high grade ore occur and the property is clearly excellent prospecting ground.

The mineral composition is such that a very high grade concentrate could be produced and a small tonnage operation could be economic.

An initial program of detailed prospecting is recommended and is estimated to cost about \$5,000.- This should be followed up by trenching and stripping, and diamond drilling if results justify.

RUBY GROUP.

PROPERTY AND LOCATION.

The property consists of 8 claims located on Jimmay Creek about 5 miles from the truck road and 194 miles by road from Fort St. James. The showings are located close to the creek, in jackpine country at elevation 4400 feet.

MINERAL SHOWINGS.

The deposits are quartz veins and lodes which carry low to intermediate values in gold and intermediate to high values in silver. Work done in previous years exposed a mineralized zone 20 to 50 feet wide in an opencut for 480 feet along the strike. The zone has been severely sheared and crushed by late fault movements which have broken up the ore shoots. Where exposed in the opencut north of the creek, the zone contains four small ore shoots as follows:

	Length	Av. width	oz. gold	oz. silver
#1	30 ft.	4.3 ft.	0.05	46.3
#2	60 ft.	2.0 ft.	0.155	7.3
#3	35 ft.	3.5 ft.	0.01	11.2
#4	30 ft.	2.3 ft.	0.027	51.6
#5	not known	1.0 ft.	0.08	26.4

#1 shoot lies in the footwall of the fault and is cut off at both ends. #2 and #3 shoots are lenses of drag ore within the fault

zone and contain mainly arsenopyrite. #4 shoot lies in the footwall at the north end of the cut and may continue under overburden beyond the cut. #5 vein branches off into the hanging wall 60 feet north of #1 shoot and goes under overburden.

FLOAT INDICATIONS.

There are indications of high grade ore elsewhere on the property. Systematic float tracing has shown that there is a train of ore boulders in the surface deposits which terminate rather quickly at a point about 1000 feet upslope from the known deposits and could not have been derived from these. More than 40 boulders were sampled and range in size from 6 to 24 inches in diameter. Some are angular, others more rounded which may indicate separate sources. Representative silver assays are: 72.6 oz. across 14 inches, 62.4 oz. across 20 inches, 32.6 oz. across 12 inches, 72.2 oz. across 4 inches and 380.6 oz. across 5 inches. Other floats were found on bedrock in some of the trenches and show gold values of from 0.23 to 0.48 oz. with minor silver values.

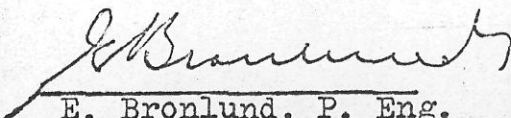
GEOLOGY.

The geological environment is almost identical to the JIM deposits in that the veins and breccia lodes occur in an area of anomalous folds on the east flank of the Tenakihi anticline, and not far from a quartz-feldspar porphyry stock. The Ruby veins also strike northeasterly and dip southeasterly, contain vugs and many inclusions of quartzite wallrock. Metallic minerals are polybasite, ruby silver, tetrahedrite with some pyrite, sphalerite and arsenopyrite. In contrast to the JIM deposits however, there is extensive silicification and alteration of the wall rocks. The main showing contains three generations of quartz veins of different orientation, all offset by faulting, the earliest being 20 to 40 ft. wide veins with tourmaline and molybdenite; the latest being the silver veins.

CONCLUSIONS.

This property shows evidence of silver mineralization in a number of places which have not been investigated due to overburden. There is no doubt that the float indications point to vein deposits other than those known. It is also probable that ore shoots can be found along the strike of the main zone to the north of the workings and #4 shoot could well be the start of something bigger. An exploration program is fully justified and because of easy access, should be done by bulldozer trenching in selected areas. Such a program is estimated to cost about \$10,000.--.

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