

C O P Y

J U L Y 14, 1928

Mr. J. E. Armstrong, Secretary,
Piedmont Mines Ltd.,
2309 - 11th Ave.,
Regina, Sask.,

Dear Sir:-

On instructions from Dr. D. C. Hart, and Mr. G. F. Beer, I have re-visited the J. & L. Mine, and am mailing you, under separate cover, my report in duplicate and two maps. As I am unable to have blue-prints made of each map, - one set to accompany the second copy of the report, and one to be sent me for my files.

It may be of interest to you if I enlarge somewhat on certain matters passed over briefly in the report, as follows:

ROADS & TRAILS: Mr. A. G. Langley, the resident provincial engineer for the Revelstoke District, was out of town and I was unable to see him in regard to the assistance that would be given by the Government toward building a road, or toward improving the present trail to the J. & L. property.

The auto road being built northward up the Columbia River from Revelstoke is now through as far as Carnes Creek. The grades are good but the general condition of the road is very bad for heavy trucking, as the policy has been to get some kind of a track through first and to improve it later.

The present rail up Carnes Creek to the mine is passable for animals with light and compact loads, but certain parts of it are badly in need of repair or even rebuilding before such items as mine rails, pipe, etc., can safely be packed over it.

CAMP: The only building near the property is an old 10 x 12 log cabin. Before any mining work is undertaken it would be advisable to construct one or two good log buildings for which the material is at hand. The Porcupine Goldfields Company used tents during their work, which was little over one hundred feet.

PROPOSED MINE WORK: I have recommended that work be started in both the Upper (or J. & L.) and the Lower tunnels. The face of the Upper Tunnel is now in ore, though narrow; the Lower Tunnel, driven by the Porcupine Goldfields, has not yet encountered the vein, but should do so within a very few feet and can then be continued on it.

Assessment work on the claims must be done this summer to keep the locations valid; the amount that is required to be spent is \$1000. Possibly an official survey of the claims would be accepted as assessment.

METHOD OF WORKING: I would recommend that any work done this season be done by hand, under contract, for the following reasons:

1. The expense and difficulty in installing a compressor, either water-power or oil driven, without a road to the mine.
2. The time required to build a road and install machinery would allow little, if any, work to be done in the mine until snow would make the roads difficult.
3. Hand work can be started promptly and continued through the winter if desired, by getting in a store of supplies.

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By next spring plans can be completed and arrangements made for building a road and installing equipment, so that no delays will occur during the work.

COST OF WORK: The scale of operations planned for this season will have a considerable bearing on the cost. As a very rough estimate for the present season, on the basis of a limited amount of hand work, I should think that \$2000. for immediate camp construction and equipment, plus (say) \$20.00 per foot for the length of tunnel planned would be reasonable and would take care of all incidentals.

To develop the mine to the point where a reduction plant is justified will, of course, cost many times this amount, but I believe that a thousand feet of additional work will give a very good idea of what may be expected, and rather definitely indicate the tonnage and value of ore that may be expected thereafter.

The J. & L. is a prospect of which I have great hopes, and with which I am glad to be connected.

Trusting that I have sufficiently covered all pertinent points, I am

Yours very truly,

CHAS. C. STARR (signed)

Property File

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R E P O R T

OF EXAMINATION

OF THE

J. & L. MINE

REVELSTOKE, B.C.

TO:

PIEDMONT MINES LIMITED

By - CHAS. C. STARR

July 5, 1928

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INTRODUCTION

The writer spent three days on the property in 1925, with Mr. McBean, the owner, and revisited it July 4th and 5th, 1928.

LOCATION AND ACCESSIBILITY

The property is located on the south slope of Goat mountain, about half a mile from Carnes Creek, and south of the east branch of the Creek, in the Revelstoke Mining Division. It is best reached from Revelstoke by automobile road to Carnes Creek a distance of twenty-seven miles along the Columbia River, thence by trail nine miles along Carnes Creek. The grades are generally good and the trail is in passable condition except for about a mile which is difficult for pack-animals.

The country traversed by the trail is one over which a road could be built at an average cost, - \$4000 per mile.

TIMBER

The property and the surrounding district are heavily timbered with a heavy stand of fir, balsam and cedar.

WATER

There is a small spring at about the elevation of the lower tunnel, and some three hundred yards west, which is sufficient for domestic use.

There are no data on the flow of the creek, but it is probable there is considerable water even at dry seasons.

On the East Fork of the creek above the camp there is a fall of 350 feet in one and a half miles; on the main creek the fall is approximately 100 feet to one and three-quarter miles, but there is probably twice as much water as in the East Fork.

The installation of water power equipment, while entirely feasible, will be rather expensive.

TOPOGRAPHY

The property extends across the point of the Mountain between Carnes Creek and its East fork. Between the intersection of the creek and the foot of the mountain there are a number of acres of practically level land; from there the mountain

TOPOGRAPHY

risers steeply along both Creeks, and has an average slope of about 40 degrees, with numerous small cliffs.

Elevations as taken by aneroid barometer are as follows: The junction of Carnes Creek and Columbia River 1700 feet, the J. & L. Camp 2500 feet; the lower tunnel 2800 feet; the upper tunnel 2000 feet; and the highest vein outcrop 4400 feet.

CLIMATE

Winters are reported to be long, though not extremely cold, and there is said to be a snow fall of four to eight feet. There are no snowslides in the immediate vicinity of the mine or camp, but two small ones across the trail, between the Columbia River and the Mines.

CLAIMS

There are ten claims in the group (see map). They are held by location and have not been surveyed. One or more additional claims should be located to cover the present camp site.

HISTORY

The claims were located at various times since 1926, and assessment work appears to have been performed regularly. Mr. McBean purchased part of the claims and located others himself.

In 1925, the property was bonded to the Porcupine Goldfields Development & Finance Co., Ltd. They drove about 100 ft. of tunnel and had some unsuccessful metallurgical tests made on the ore.

EQUIPMENT

There is little equipment, a few hand mining tools, and a very poor cabin being all.

DEVELOPMENT

There are 25 or 30 small open cuts and the trenches on the vein, extending across the J. & L. Annie M., "98" and York Claims. Near the northwest end of the "98" claim an 80 foot cross-cut tunnel has been driven, from which there is an 80 foot drift (30 feet now caved) and 120 foot inclined winze. Near the Northwest end of the Annie M. claim there is an incline shaft 130 feet

TOPOGRAPHY

deep on the vein. Near the centre of the J. & L. claim a tunnel ^{268 (c.c.s)}~~258~~ feet long has been driven from which there are 30 feet of cross cuts; 185 feet of this tunnel is on the vein. Near the northwest end of the J. & L. claim a 75 foot tunnel has been driven, 200 feet vertically lower, but does not show the vein, although it is undoubtedly very close to it.

GEOLOGY

On account of the steep slopes of the mountain and a heavy covering of soil and brush, the surface geology was not studied in detail.

The country rock consists of schisted argillities, impure limestone, generally thin bedded, and some massive quartzite. No igneous rocks are known in the vicinity of the mine, except near the northwest end of the York claim, where a very small outcrop shows a porphyritic rock.

The average strike of the rocks is N 40 degrees W and the dip 40 degrees north^{east}~~west~~ into the mountain.

There is no evidence of serious faulting, but there are undoubtedly a number of small breaks. On the southeast end of the property the hanging wall is schist and the footwall also schist, but more siliceous but at the third cut from the southwest end of the York claim, and thence northward the hanging wall is schist and the footwall limestone, extending several hundred feet to the northwest of the J. & L. tunnel. From this point the footwall is again schist, as well as the hanging.

It is evident from this change in the wall rocks that the vein does not follow the stratification of the rocks perfectly, but it appears in general to do so.

The geology of the area is favourable to the formation of a strong vein, persistent in depth, and to the presence of ore. The regularity of the strata and vein should be conducive to low mining costs.

VEIN

The southeastern part of the vein strikes N 44 degrees West and dips 37 degrees N.E. while the northeastern part strikes N 30 degrees West and dips 45 degrees N.E.

The vein has been opened by cuts at close intervals for 4,000 feet; to the extreme Southeast on the Dunbar claim the vein narrows and breaks into stringers, and disappears at a distance of several hundred feet. On the northwest end of the J. & L. claim the vein is not well exposed, but two or three small cuts near the Creek show sulphides still present, together with a considerable amount of quartz, and with locally a quartzite hanging wall. There is a possibility that the vein has split some distance above the creek, as there is another stringer about 150 feet to the northward, each appears to converge toward the tunnel.

The vein varies in width from one foot to ten feet. The average width of all samples is about $3\frac{1}{2}$ feet, but this is less than the true width of the vein as many of the samples did not include the lower grade portions. The vein filling consists of veinlets and lenses of nearly solid sulphides with some quartz, seams of sulphide in partially decomposed schists, bluish nearly barren quartz and an iron stained residuum of schist and limestone from the oxidation of sulphides and leaching of the rocks by acid. The sulphides consist of a fine grain mixture of arsenopyrite, pyrite, galena and sphalerite, with which there is a small amount of fine grain quartz.

As a rule there is small gouge on the hanging wall and frequently also on the footwall. The walls are generally strong, but at a few places are broken and slabby. The vein is not entirely unoxidized at any point that can now be seen, but near the face of the tunnel the oxidation is very slight.

Over the northerly two-thirds of the York claim the vein appears to have good width and values in general, although somewhat variable, and this condition holds for a distance of five or six hundred feet onto the "98" claim. Thence the vein is rather lean and narrow nearly to the "98" shaft. At the "98" shaft the vein is ten feet in width, and throughout these workings the width is greater than at any other point exposed. In the first two cuts North of the "98" - Annie M line, the vein is narrow and appears to be low grade, it is then generally of fair width and fair apparent values up to the Annie M. Shaft. In this shaft the best ore is.

THE VEIN cont'd.,

about two feet wide while the vein proper is about 3 1/2 feet wide. From this shaft to the tunnel the vein appears a fair grade, though not very wide.

At the J. & L. tunnel the vein is comparatively narrow and consists of sulphide, except for a few inches next the foot wall.

The face of the tunnel shows 2 feet of vein only a small part of which is ore. Further down toward the creek two cuts expose two veins, both of which show seams of ore.

SAMPLING

Thirty-five samples were taken on the property, covering the greater part of the open cuts, and the underground workings at intervals of 20 feet.

Nine samples taken from various surface cuts on the York, ninety-eight, Annie M. and J. & L. claims, a distance of 3,800 feet, gives an average metal content of \$8.46 gold, 1.8 oz. silver, 2.0% lead and 2.1% zinc over an average width of 3.2 feet.

The average of twenty-two samples taken in the underground workings is \$6.74 gold, 4.7 oz. silver, 5.8% lead and 3.9% zinc, over a width of 3.6 feet.

The average of both surface and underground samples is \$9.54 in gold and silver (silver taken at 60¢ per oz.) 4.6% lead, and 3.4% zinc.

The sulphide ore also contains arsenic up to the extent of 20% in places, but this is of no present value.

ORE DEVELOPED

There is no ore blocked out; there is, however, evidence of fair values throughout the vein for 4,000 feet along its strike, and there are apparently shoots of specially good ore near the junction of the York and "98" claims, at the "98" shaft, at the J. & L. tunnel and possibly at the Annie M. shaft. It is a reasonable presumption, therefore, that 400,000 tons of ore may eventually be developed above the level of the J. & L. tunnel, alone.

ORE TREATMENT The ore is very complex and the difficulty in reducing it to marketable products has prevented the

mine from being developed years ago.

Oil flotation tests made by the Minerals Separation Company several years ago were unsuccessful, but recent advances in flotation knowledge have lead this Company to express the belief that they now would be able to treat the sulphide ore successfully.

Steps are now being taken to investigate claims that the Standard Metals & Chemical Company are able to treat the ores of the J. & L. Mine economically and efficiently.

SUMMARY

The vein lies essentially with the bedding planes of the enclosing limestone and schists. It has been developed by open cuts over a length of 4,000 feet on the strike, and at elevations nearly 2,000 feet apart, indicating that it has an average width of about 4 feet.

The average Gross value of the gold and silver in the ore now exposed is \$9.50 per ton, and the gross value of the lead and zinc (figured at present market quotations) is \$8.30 additional. In actual mining, the grade of the ore would probably be reduced, say 20% by dilution of the ore waste rock unavoidably included.

Physical conditions, except that of transportation are good and development and mining costs should be reasonable. The principal difficulty would appear to be the development of an efficient process of ore retuction, and the claims that such a process has just recently been developed are now being investigated.

RECOMMENDATIONS

As previously noted, there is presumed to be a large tonnage of commercial ore in the vein, but it is not developed sufficiently so that it can be evaluated.

~~It is recommended, that development be started to further~~
open the mine and to block out the ore so that it may be definitely measured and sampled.

Such development can best be begun by extending the tunnels on the J. & L. claim southeasterly along the vein. This work should be supplemented by driving raises on the vein at frequent intervals.

Considerable preliminary preparation of trail, camp accomodation, and equipment is necessary before any substantial work is undertaken.

CONCLUSION

The J. & L. is an exceptionally promising prospect and while the vein is neither large nor high grade, it promises to show under proper development a large tonnage of commercial ore.

A large amount of work will be necessary to definitely prove up the mine, and is fully justified by the present showing.

Respectfully yours,

CHAS. C. STARR

(Signed)

*Copying checked & OK.
Chas. C. Starr*