

W.A. No.

NAME *Geological Report*

SUBJECT

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PROPERTY FILE

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82F/4W
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ENGINEER'S REPORT
VELVET PORTLAND MINE
ROSSLAND MINING DISTRICT
BRITISH COLUMBIA, CANADA

Due to the familiarity of the stockholders with the location, number of claims, former production and location of the Velvet Mine, the usual resume of the history of mining properties contained in reports I shall omit.

GEOLOGY: The veins of the Velvet Mine are fissure replacement veins with the wall rock impregnated for some feet. The strike of the veins is North and South, parallel to the dykes, and dip to the West at steep angles. The vein in the richest stope (the Kelley Stope) has a dip of 70 degrees. Many dykes cut through the ore bearing ground.

In the lower tunnel (that is the 800) for the first 600 feet the dyke intrusions are of the pink granite porphyry. This is the only tunnel or drift in the entire property that can be considered an extensive cross cut, and shows the geology of the hill very plainly.

This pink granite porphyry dyke is only exposed in three of the upper levels, #1, #2, and #3. These are the only levels where any cross cutting has been done in the foot wall side of the vein. However, in the vicinity of the ore bodies as above mentioned, especially the most productive areas in the mine, shows considerable dyking. The dykes observed by me in the vicinity of the veins and especially in the Kelley Stope contained considerable Hornblend.

The upper five levels are in a zone of marked oxidation. At one point on the 500 and 800 this oxidation was also pronounced. This I shall describe later.

The country rock is mottled gray eruptive rock with Selicious and Chlorite phases which is much epidotized in places. Serpentine and altered Chlorite rock with Magnetite was present in the 800 level. This serpentine and Chlorite characteristic is very noticeable in the upper and richest levels of the mine.

DEVELOPMENTS AND WORKINGS: The Velvet Mine is opened by a shaft 620 feet deep, and eight levels #1, #2, #3, #4, #5, #6, and #8.

#II

600 level is full of water. However, it was possible to get down to a stope on the top of the 600 level, that is at the 600. Most of the ore that has been extracted, milled and shipped from the mine has been taken from the #4 level up. #1, #2 and #3 except for a few pillars having been practically worked out. From the #3 level down to the 800 level, which does not connect with the shaft, there is still lots of ore. The shaft is sunk about 20 feet below the 600 level. The 800 level, being 800 feet from the surface, does not connect with the shaft. To connect with the shaft on the 600 level it would be necessary to drive the 800 approximately 85 feet and rise 180 feet.

RESULTS OF EXAMINATION: The first two days of my examination I spent in going through the entire mine. I examined every level and every stope that had been worked and was being worked. I made a very careful examination of the type of veins, also characteristics of the walls, leachings, type of ore in the veins etc.

After I had made my tour I dropped down to the 800 level and started my examination at this point. The examination of each level is herewith set forth in rotation as I found it.

800 LEVEL: For the first 600 feet of the 800 level the formations were massive pink granite porphyry intrusions interbedded with greenish serpentine heavily chlorite stained. At the junction of the serpentine and granite small stringers of dolomite were noticed. At 660 feet there is a strong fault. This fault has a gouge three feet wide. The fault shows a strong downward and lateral movement. This fault was observed at no other point in the entire mine, the fault being in the hanging wall side of the vein. As mentioned above, no extensive cross cutting has been done in the hanging wall side of the vein. The fault has the same strike and practically the same dip as the veins (that is parallel to the vein system).

Beyond the fault just a short distance I observed a heavy mineralization showing an extensive copper stain in sulphide. A shipped sample taken at this point assayed \$4.39 in copper and gold, 1% copper. This is indeed a good indication.

300 feet from the face of this 800 drift a cross cut was run to the south. This cross cut is exceptionally wet

and in the face was the same type of dyke and oxidation as was found in the best stopes and veins of the upper levels. 250 feet from the face on the north side of the drift a heavy sulphide was observed. This is indeed a very good indication and lines up with the sulphide exposed in the cross cut. A sample taken at this point in the 800 level (sample #1) assayed \$23.97 in gold, silver and copper. The sample assayed 5.1% copper and .7 oz. silver and .32 oz. in gold. This proves beyond a question of a doubt that the ore continues down to the 800 level and I firmly believe is a downward extension of the Kelley Stope, being of the same type and character of vein material that was encountered in the Kelley Stope.

600 LEVEL: As mentioned above, the 600 level was filled with water. However, it was possible to climb down through a raise from the 500 level and enter an old stope at the 600. This stope shows an exceptionally fine vein. The vein in the face of the stope being split, with a horst of country rock between the veins. The vein in the foot wall is 12" thick at the thickest place and the vein in the hanging wall 6" thick, making a total width of $3\frac{1}{2}$ feet assayed \$5.75. A sample taken in the foot wall in the 12" of high grade assayed \$65.45. A sample taken in the hanging wall 6" assayed \$42.84. There is only one method by which this type of stope can be worked and profitably, and that is by hand sorting and milling just the two high grade veins and sorting out the waste. This is the most economical method.

500 LEVEL: North of the shaft in the 500 the face of the drift shows a vein filling heavy copper stain with hematite. I should like to mention at this time that I noticed during my examination that this hematite was very prominent and always present wherever the vein was strongest and especially in the old stopes from which the richest ore was extracted. The copper stain was also very prominent. This vein is traceable on the 500 level north of the shaft for 120 feet. South of the shaft there is also a strong copper stain with hematite. The vein is very strong along this drift.

At station R on the 500 at a small cross cut two new stopes were started. In the face of these stopes were several small stringers of high grade. These stringers were approximately an inch

thick. In order to remove these stringers it was necessary to blast a round 5 feet in width. By doing this you extract 20 times as much waste as you do ore. Again I say this is not very profitable. THIS ORE SHOULD BE SORTED. I shall refer to this stope later at the same time I refer to the stope on the 600 level and will come under the heading of Recommendations.

The 500 level 40 feet south of Station R shows the downward extension of the Kelley Stope. A sample taken at this point assayed \$31.49. This vein is very distinct at this point and is the Northern and downward extension. The vein shows an exceptionally high oxidation. The drift was continued beyond this point for a distance of 160 feet and is positively in the hanging wall of the Kelley Stope. The drift is in country rock.

A small stope started in this new drift was in a highly pyretic vein with abundant iron. This vein was also observed on the 400 level in the foot wall of the Kelley Stope.

400 LEVEL: Starting at the shaft of the 400 level the drift follows the vein for a distance of 120 feet. The vein shows high oxidation, an abundance of iron stain, Limonite. This stain is also accompanied by a copper stain. This is characteristic of the good ore shoots and very noticeable on this level.

At the shaft, preparations were made to remove a pillar of ore. A few holes were drilled at this point. However, the pillar was not removed and I wish to emphasize at this time that the removal of the pillar is dangerous and will weaken the shaft timbers. In other words the pillar should not be removed.

280 feet south of the shaft the Kelley Stope was intersected. This Kelley Stope was one of the richest stopes in the entire mine. The Kelley Stope has a dip of 70 degrees to the Northwest and rakes to the Northeast. By following this rake and dip down through to the 500, 600 and 800 levels the Kelley ore shoot would be intersected. On the 500 level east of the new drift that has been run and continuing further north, it would project down through to the point where the sample was taken on the 500 level and assayed \$31.49. This assay carried high in copper, the copper content of the assay alone

being \$22.32

On the 600 it was impossible to examine any points where the vein would go through, due to the amount of water. On the 800 level it projects down approximately at the point where the #1 sample was taken. This sample assayed \$23.97 with \$12.24 in copper.

The Kelley Stope down to the 400 level has been practically worked out except for a few pillars. However, underneath the track at the bottom of the Kelley Stope there is still a good indication of ore. The vein at several points measuring from 18" to 2' wide and being very highly mineralized. One characteristic of the vein filling of the Kelley Stope that I noticed was the predominating quartz. By this I mean that the chief vein filling, or gangue, is pure quartz with disseminated sulphide, both copper sulphide and iron sulphide. This characteristic is the one clew to the Kelley Stope that is easily traced. I noticed this particularly at certain points on the 500 and 800 levels. The Kelley Stope also shows two very distinct walls.

The drift was continued beyond the Kelley Stope a little west of south for 80 feet. The Kelley vein continues along this drift and is very prominent. At this point a left or 90 degree turn was made and the drift continued for 50 feet. From there the drift was again continued to the south. 40 feet from the last turn a new stope was started recently. This stope seemed to carry good values, but is positively of a different type to the Kelley ore, carrying heavy iron sulphide. This heavy iron sulphide is hard to treat, which made the mining of it and the saving of the values not very profitable. Work was discontinued in this stope. I approve of this. This vein is, beyond a question of a doubt, not the Kelley vein, being in the foot wall of the Kelley Stope and, as before mentioned, of an entirely different type.

300 LEVEL: The greater part of the 300 level has been worked out above. Several stopes have been run up to the 300 level from the 400.

At the top of the Kelley Stope on the 300 I noticed that the vein also continues. The same type of prospecting was done south of the Kelley Stope on the 300 as was carried on on the 400.

By this I mean the drift was continued first to the east and then to the south, again in the foot wall side of the Kelley Stope. This drift to the south shows exactly the same characteristic as the drift to the south and east of the Kelley Stope on the 400 level. In fact, a new stope started in this drift was exactly the same type of ore as the stope that was so disappointing in the foot wall side of the Kelley on the 400 level. The results of these comparisons are that the 300 and 400 continuation is too far east to pick up the Kelley ore by 40 to 60 feet.

200 LEVEL: The 200 level is badly broken. Veins were noticed in every drift and cross cut on the entire level. There are a few ore shoots left on the 200 level. The greater majority of the stopes, however, have been entirely worked out except for a few pillars left to support the ground. Due to the nature of the country in these upper levels, it is hard to trace any vein and follow it for any distance. The reason, as mentioned before, is badly broken and faulted country.

100 LEVEL: The 100 level is practically worked out. There are a few pillars left that could be worked profitably by leasers, and that is all. This level is also badly broken.

MACHINERY AND EQUIPMENT: The Velvet Mine is equipped with an electric hoist, blacksmith shop, a new Gardner Denver compressor and other necessary mining equipment. However, this machinery cannot be considered in the best of shape, especially the machines. I understand from the Manager that the Canadian Government has also ruled that the type of hoist now being used on the Velvet is obsolete and should be changed. The cost of this work is approximately \$3,000.00.

The compressor, at this elevation, is only capable of delivering 313 cubic feet of air per minute. To operate three stopes and the drift it will take 570 cubic feet of air per minute. The result is that the compressor is not large enough. It is necessary to operate at least three stopes to keep the 100-ton mill running that you now have on your Velvet mine.

The cars and equipment underground are fair. However, the machines are all of the old type and use lots of air. Therefore, the machines cannot be considered economical. The result is that the machines should be replaced.

The steel is being sharpened by hand. This is very

slow and very costly.

RECOMMENDATIONS: Assays were taken from the 800 up to the 400 levels. The average assay of the 800 was \$14.18. The average assay of the 600 was \$38.01. The average assay of the 500 was \$31.39. and the average assay from the 400 was \$11.51. The way I arrived at these averages was as follows: Taking the total number of assays and adding them up, the sum total of the whole thing came to \$185.40. There were seven assays altogether. Divide \$185.40 by seven and it gives you an average assay of \$26.48 from the 800 to the 400 level. The same method was used in getting the averages of each level. For instance, two assays from the 800, three assays from the 600, one from the 400 and one from the 500. The #1 sample taken on the 800 level shows good copper content. The #1 sample was taken about three hundred feet west of the face. This sample assayed \$12.24 in copper, 53¢ in silver and \$11.20 in gold. A sample of the high grade vein in the 600 assayed \$38.64 in copper, \$25.20 in gold and \$1.61 in silver. An assay taken on the 500 level, the place designated as the downward extension of the Kelley Stope, assayed \$22.32 in copper, 77¢ in silver and \$8.40 in gold. The assay taken on the 400 level, a continuation of the Kelley Stope, assayed \$10.08 in copper, 38¢ in silver and \$1.05 in gold. These assays prove beyond a question of doubt that there is just as much ore from the 400 level down as has been from the 400 up.

On the 600 level, as I mentioned before, in the stope there are two high grade veins, one 12" wide and the other 6" wide. Between these veins there is a horst 2' thick, making a total width of 3½ feet. In running the stope the method of extraction that has been practiced has been to shoot out the whole thing and mill it as it was. This is not practical. By this, I mean that you are taking two high grade veins and making a very low grade mill feed. This method I also noticed on the new stope started on the 500 level. The stopes on the 500 level I shall use as an illustration.

These stopes are practically 20 feet in length and are 5 feet wide. In this 5 feet of width there are a number of small stringers, about twelve. These have an average thickness of one inch. Twelve stringers one inch thick across a 20-foot face, for every foot of vein would give 20 cubic feet of high grade ore, which would be

approximately $1\frac{1}{2}$ tons. One ton of this type of ore averages around \$35.00 per ton. However, to extract this $1\frac{1}{2}$ ton of ore it is necessary to break five feet of ground. In other words, you have to drill and blast a face five feet wide, 20 feet long and 5 feet deep, giving a total cubic footage of 500 cubic feet, and out of this 500 cubic feet you only have 100 cubic of good ore. This is all mixed together and instead of having a mill head of \$30.00 or \$60 rock, you have a mill head of only \$6.00 rock and more often your mill head will go down to \$3.00. The point that I am driving at in this illustration is this. You are extracting from these stopes each day 50 tons of waste and ore combined per shift. To run your 100-ton mill it is necessary to operate at least four of these stopes a day for the simple reason that when you are mucking out of one stope you are drilling in another. In order to do this it takes two machines to the stope, which would mean four machines. Four machines in two stopes, stopers alone, use 560 cubic feet of air per minute. This is impossible with the present compressor and equipment to furnish the 100-ton mill. However, by working these type of veins and sorting the ore from the waste and just milling the good grade of ore it is possible to operate a 100-ton mill with the present equipment. With the type of veins and stopes that you are now working to keep that mill operating twenty-four hours a day you have to put through waste.

However, it is necessary to purchase new drills. As above mentioned, the present drills are almost obsolete.

From the 200 level up, as above mentioned, should be leased. The present method of development recommended by me is the continuation of the 800 level to a point directly underneath the present shaft. From this point a raise should be driven to connect with the bottom of the shaft below the 600 level. This would not only drain the 600 level and open it up, but would also furnish good ventilation for both and the 500 and 600 levels. Proper ventilation at the present time is lacking. This 800 level from all appearances is the most practical part of the mine to continue developing. Beyond a question of a doubt the rich ore shoots that have been stoped out up above can be projected down to the 800, picked up and worked from this point. In order to

perform this work it will be necessary to install another compressor at the portal of the 800 level. Pipe line could be carried in to the face and an additional air supplied for the entire mine. As mentioned above, the compressor now installed on the property is not large enough to handle the machines necessary to operate, and additional air is needed.

I do not think it is necessary to diamond drill these lower levels for the simple reason that the veins are practically exposed and it is just a matter of connecting the 800 level with the shaft and draining the 600 and starting the stopes from the lower levels

I do not recommend at this time the building of a mill at the portal of the 800 level. In my opinion it is much better to open the lower levels first, start the stopes, develop and block out a good ore reserve. This can be easily done. A large ore bin could be built at the portal of the tunnel to take care of the surplus ore extracted from the stopes and the stopes themselves in the mine could be used for storage space. In other words, summing up the above recommendations open up the 800 level, develop the 600 level, get the downward continuation of the Kelley Stope, Block out the ore and get an ore reserve in the mine before an attempt is made to build a mill or install any extensive and expensive new equipment at the portal of the 800 tunnel. The only pieces of equipment that should be installed at the portal and are necessary at the present time are an additional compressor, new machines, a sharpening machine, blacksmith shop and probably necessary camp buildings at this point.

The amount of drift necessary on the 800 would be approximately 85 feet. This can be contracted and driven for a very reasonable figure. The raise will be approximately 180 feet. This work would take, including the installation of the equipment, about two months. I do not know whether or not it is advisable to start this work before next spring. I think it would be better to wait until spring and perform this work under the direction of a reliable engineer as Manager. A rough estimate of the cost of the work would be approximately \$15,000. The cost of the equipment would depend entirely upon the type of equipment purchased and whether new or second hand.

Assay sheet and small map attached to this report.

Respectfully submitted,

JEAN M. PETERS
Mining Engineer and Geologist

82F/4W
82F/3W-162

Rossland, B. C.
Dec. 17, 1921.

Board of Rossland-Portland-Velvet Mines Ltd.
Rossland, B. C.

Gentlemen:

I have the pleasure of submitting my report on your mines as follows:

The Velvet property is situated 6½ miles S. W. of Rossland on the north-west slope of Sophie Mt., in the valley of Big Sheep Creek. The Transcontinental highway crosses the property near the bunkers. The ore can be trucked to the smelter at Trail, of the Cons. Mining and Smelting Co. of Canada, Ltd., or to Rossland, and by Can. Pac. Ry. to the smelter.

PROPERTY. The property consists of seven crown granted mineral claims, together with surface rights for four. The Company also owns 605 acres of timberland adjoining.

BLDGs. AND EQUIPMENT ON THE PROPERTY.

- 1 Cross compound steam driven air compressor - 15 drill capacity.
- 1 double cylinder two drum hoisting engine.
- 1 two cylinder single drum hoisting engine.
- 1 sawmill with engine, saws and carriage complete.
- 1 large blacksmith shop with all necessary tools.
- 1 carpenter shop.
- 1 machine shop with steam engine and some tools of all descriptions.
- 1 storehouse.
- 1 large bunkhouse.
- 10 cottages, in good condition balance dilapidated.
- 1 large cook house for 100 men.
- 1 eight room manager's residence, mostly furnished.
- 1 office with furniture and large safe.
- 1 assay house.
- 1 powder house.
- 1 school house.
- 1 concentrating plant, equipped with 6 steam stamps, 6 gravity stamps, five Whiffley tables, two crushers, three steam engines, and all necessary shafting and pulleys complete.
- 1 large stable and a good domestic water system.

Ore bins are large and roomy and equipped with sorting belt, driven by steam engine. Power is furnished by two English return tubular boilers of 100 H. P. each, and one water tube boiler, 100 H P. We also have on hand one 60 H P tubular boiler and one upright boiler not set up. In addition there is to be found on the property 9 Piston Drills and repair parts, two #6 sinking pumps, two larger pumps, one new skip, several thousand feet of pipe from one to four inch over one mile of track, ten steel tram cars, several hundred feet of ventilation pipe, and tools and implements too numerous to mention.

The machinery is the very best obtainable, and as good as new; a very conservative estimate places the value of plant at \$75,000.00.

GEOLOGICAL. The fissure veins, which are replacement veins with wall rocks impregnated for some feet, strike north and south parallel to the main dyking system and dip to the west at steep angles. There are many dykes cutting thru the ore bearing ground some of which are pulaskite (alkalic syenite) tongues (Aeschistic or undifferentiated dykes) from the underlying Coryell batholith and others complementary dykes (diaschistic or differentiated dykes). The dykes invariably show pronounced chilled borders and all the enrichments in the veins occur either alongside such dykes or at the intersection of slip planes. The most productive area in the mine and the one most cut up by dykes is that south of the main Velvet shaft. The upper three levels are in a zone of marked oxidation which appears to extend in places down to the fourth level. Good sulphide ore running \$12 to the ton up to 50" wide but averaging 24" occurs on the fourth level. The values in the ore fluctuate very rapidly; in some localities running high in gold and low in copper.

Besides the main north and south vein there are a few east and west striking veins that so far have proved short and unimportant. The country rock is a mottled and irruptive rock, with coarse silicious and chloritic phases, which is epitotized in places. There is also a severely altered silicified, eruptive rock. Serpentinized and altered chloritic rock with which magnetite is associated, are also present in depth and tapped by diamond drill holes below the 6th level.

PORTLAND CLAIMS. A shaft has been sunk on the upper vein to a depth of 100 feet, and on the lower vein to a depth of 200 feet, and some good ore found but very little development has been done to these lodes. A cross cut tunnel has also been driven on this claim over 1000 feet towards the main vein and connecting with the bottom of the lower shaft. This cross cut was discontinued by the former owners for lack of funds, but if driven 200 feet further should strike the vein at the lower level. The shafts on the above claim are in Greenstone belonging to the Rossland Volcanic Group, which is much pyritized, silicified and broken by slip planes.

TOPOGRAPHIC. Conditions of the mine are favorable for cross cut tunneling. The shaft collar is 1240 feet above the creek bottom and the valley slope is so steep that the 600 feet level of the mine could be tapped by a tunnel driven 600 feet in from a point further down the hill. A 1200 feet level in the mine could be tapped by a 2700 foot tunnel (cross cut tunnel).

DEVELOPMENT. The development consists of a three compartment shaft sunk to 500 feet to the 6th level, equipped with hoisting engine, cage and ropes. A tunnel have been driven which connects with the shaft on the 4th level and drains the mine to that depth. Approximately 8500 feet of development has been done on the property, consisting of drifting, cross cutting, raising and sinking. Practically all the stoping has been done on the upper four levels and a large amount of ore has been taken out, the exact amount of which is not available. Approximately \$200,000 has been expended on development by the late owners.

DIAMOND DRILLING. The office records at the mine show that a diamond drill was operated from a station on the 6th level, and in three holes sunk at different angles, a large ore body was encountered about 120 feet below that level. One hole showed three feet of mixed ore, another 11 ft. of solid ore, and another 12 feet of solid ore. The result of assays of the ore are not available, but from information received from miners working at the mine, the assays were high in copper and gold. The Granby Copper Co. pumped out the lower levels some years ago, and operated a diamond drill, and after experimenting, are said to have done a lot of work on the property; so that it would appear that the results of their diamond drilling were satisfactory. When the Granby closed down their smelter at Phoenix they appear to have discontinued operations in the Kootenays, and relinquished their interest in the Velvet-Portland properties. The present owners have shipped some 500 tons of ore this last summer, the average value being about \$40 per ton, principally in gold with a small percentage of silver and copper. The returns have more than paid running expenses of the mine. The office records show shipments from the mine -- August to December, 1902, as follows: This gives a good idea of the values in gold, silver and copper:

<u>LOT</u>	<u>WEIGHT</u>	<u>% COPPER</u>	<u>OZ. SILVER</u>	<u>OZ. GOLD</u>
135	770950	7.60	.9	1.23
138	99800	7.90	.8	1.32
140	105900	6.80	.8	.95
141	61900	9.40	.8	1.26
142	109050	6.50	.8	.85
143	112700	9.24	.94	1.11
144	63500	8.22	1.12	1.10
145	60300	5.80	1.24	.96
146	56700	5.20	.60	.87
147	66100	7.70	.70	1.05
148	178300	7.30	.9	1.10
149	61200	6.40	.9	.86
150	61100	7.10	.76	.91
151	71300	5.94	.80	.74
152	59300	6.20	1.00	.96
153	59000	6.50	.82	1.05

<u>LOT</u>	<u>WEIGHT</u>	<u>Y. COPPER</u>	<u>GR. SILVER</u>	<u>GR. GOLD</u>
154	52700	6.34	.88	.66
155	54100	7.10	.78	.76
156	56000	5.92	.992	1.04
157	56600	5.48	.80	.66
158	76000	8.10	.64	.83
159	57200	4.50	.90	.73
160	68800	6.20	.60	.86
161	52250	3.30	.92	.47
163	72000	4.10	.66	.67
164	42250	4.20	.80	.72
165	61900	5.32	.80	1.06
166	67000	7.10	.70	1.04
167	76150	6.50	.60	.72
168	76200	4.20	.60	.68
169	71900	5.00	.60	.92
170	69450	5.90	.70	1.00
173	67600	6.50	.50	1.40
174	51500	4.80	.60	.86
175	52800	4.40	1.70	.72
178	56400	4.10	2.40	.44
179	56700	2.90	.70	.30
180	113400	3.00	.80	.35

Where copper is high, gold is also high. Most of this ore was obtained from the lower levels. The driving of two tunnels has been considered. The intermediate would tap the 600 ft. level 1600 ft. along. The lower would tap the mine at a depth of 1200 ft. I would strongly advise that the intermediate be driven so the 5th and 6th levels could be drained (thus saving pumping, which would cost about \$40 per day.) The lower levels could then be further prospected, and also tap the large ore body encountered by the diamond drill 120 ft. below the 6th level and cross cut several veins running thru the property.

ORE AVAILABLE: 1st level 4000 tons, average \$15 gold and copper;
 2nd level 10,000 tons, average value \$14.50;
 3rd level 15,000 tons, average value \$17.00;
 4th level 12,000 tons, average value \$16.00;
 6th level 20,000 tons, average value \$18.00; there are also several thousand tons of ore between the 3rd and 4th levels rated as high as \$40 per ton.

DUMPS. Estimated ore in dumps on the surface 15,000 tons, average value \$7 per ton. I would therefore advise starting the mill as soon as possible so that you could treat the ore in the dumps, and also the available ore in the mine; thus eliminating the expense of hauling to the smelter. There are no metallurgical difficulties in treating the ore, as it could be milled with present equipment on the old mine. The mill, not being an up-to-date one, you could make a 70% concentrate and save the tailings for future treatment. Estimated cost of milling is \$1.50 per ton.

An oil flotation plant could be installed at the foot of the present mill, treating 100 tons per day, at a cost of approximately \$3000. This you could consider at a later date.

CONCLUSION. Proceed with the intermediate tunnel and opening of the veins encountered by the diamond drill on the 6th level; that is, provide in the shortest time the largest content output of ore; increase the mill capacity by adding a flotation plant so as to give better extraction and thereby reduce the cost of hauling waste to the smelter.

For this purpose, I consider that \$100,000 will be required and I advise you strongly to take the necessary steps to provide it.

PROGRESS REPORT

V E L V E T M I N E

Rossland, B. C.

Prepared by K. F. Brunning - Manager.

The undersigned Director of Velvet Exploration Co. Ltd. visited the workings of the Velvet Mine on November 25 and 26th, 1980, accompanied by two professional Geologists, J. O. Rud of Yuma, Arizona and G. G. Krause of Calgary, Alberta. The Geologists will report on their findings by separate report as to the geology and mineralogy of the mine. However, in passing I will state that both men were impressed by the potential of a massive sulphide deposit between the Six Hundred and Eight Hundred levels of the mine.

For my part I examined the work performed to date by the contract mining crew and the results are as herein noted:

800 Foot Level - The portal entrance had been re-inforced and was in a safe condition. A draft door had been installed near the mouth of the Portal to reduce the intake of cold air. Air was circulating freely through the level and water was draining through the ditching system.

Two inch air line had been laid and coupled for approximately one thousand feet ready for future drilling.

Timbering had been completed over areas requiring same. However, some additional timber will be required before the 800 foot level can be used as a haulage.

Access via a temporary passageway had been gained to the rest of the 800 foot level so for the first time we were able to visit the locations of several chutes. These chutes were manually operated at one time and most of them contained either ore or waste. These will, of necessity, have to be emptied at a later date and refitted with air dumps to expedite future mining.

Ladders had been installed and or replaced in the 801 raise which had been designated as a man-way to the 700 foot level.

700 Foot Level - Our visit to the 700 foot level revealed that several drifts, a stope and some open grizzlies had been drilled in the past and extensive work had been done. Several pillars of ore had been left and we instructed the crew to drill a series of test holes on this level, catching all cuttings so we could determine the value of the ore through assays and the mineralogy of the sulphides through spectograph analysis. We noted that several feet of track were still in good condition and could be used if and when this level was mined in the future.

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600 Foot Level - Access via a man-way which had been restored with new and or repaired ladders, was gained to the 600 foot level. This man-way also had a winch slide in it, used in the past to raise equipment, etc. to the 600 foot level.

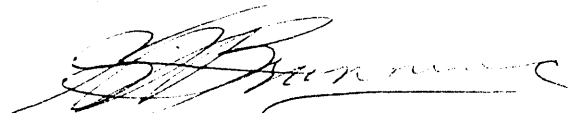
When reaching this level, we noted very extensive mining operations had been carried out and the impression of the Geologists was that below the Six Hundred and possibly through to the Eight Hundred foot level, ore should be located.

Up to the 600 foot level was the end of the work done to date by the crew.

The following work program was laid out with the mining crew as a result of this visit and should be performed in the order set out below:

1. Outside access to the 400 foot level was located for the miners by Mr. W. Graham and now should be cleaned out sufficient to provide a second exit from the workings if ever required.
2. From the 400 foot level restore and repair man-ways down to the 600 foot level to provide access and the second exit.
3. Hook-up air and water lines to the 700 foot level utilizing where possible existing old lines still useable, particularly up the raises.
4. Drilling test holes on the 700 foot level into the sulphide deposit, catching all samples. This drilling should result in a representative value of the mineralization in the ore body. These samples, once delivered to an assay office, are to be divided into two lots, one to be spectographically analyzed and the other to be assayed for Copper, Gold, Silver, Lead, Zinc and Molibdenum. This will require approximately 20 holes, six feet long to evaluate the above.
5. The upper opening of the old shaft should be closed by building a secure platform over the open end and then covering same with dirt and rock leaving only a ventilation chimney.
6. Drilling on the 800 foot level - at the face of the main drift, set up to drill a series of 100 foot holes in a fan formation to attempt to locate the ore body. This will be a minimum of eight holes, all of which must be closely supervised to watch for ore cuttings in the drilling returns.

It is believed this program will require the retaining of the present contract crew until the 20th of December. Following this program, an evaluation of the results will be required before determining the next phase. Mr. Rud and Mr. Krause are preparing an in depth historical study of the Velvet Mine which, when added to the results of this program, will enhance our chances of making the necessary decisions for the ongoing program.



K. F. BRUNNING