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P. M. KAVANAGH

W. M. SIROLA

VELVET MINE, ROSSLAND, B.C.

June 26th, 1962.

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I have, this day, advised Mr. J. C. Urquhart that the potential of the Velvet Mine is, in my opinion, too limited to justify our participation. This opinion arises from a perusal of data which I received this morning from the property owners. The synclinal, or bowl-shaped structure on the 7th level may yield more ore, but the tonnage would in all probability be limited. The drilling results below the 7th level must have been negative, or nearly so, because no records seem to have been kept. Even if a substantial tonnage of ore were found from developments both North and South of the synclinal ore body, the grade is too low to yield anything but the slimmest marginal profit even if the mill were operated at it's maximum capacity of 150 tons per day.

William M. Sirola.

WMS:rl

June 5th, 1962.

Mr. J. C. Urquhart,  
ROSSLAND, B. C.

Dear Mr. Urquhart:

I have repeated my request for reports and maps to the President of Midwest Uranium, but have heard nothing further from him. It would appear that he is disinterested in providing this information and I would suggest that if your lease provides that you have access to this information, you try to obtain the reports from him.

The gentleman I talked to was a Mr. Shaw who is connected with a brokerage firm known as Traders Investments. I also called David Anfield of Russell & Du Moulin, who is a Director of Midwest, but all he could do was refer me to the aforementioned Mr. Shaw.

Conceivably, we will receive these reports in due course, but that is of very little help to you.

Yours sincerely,

KERR-ADDISON GOLD MINES LIMITED

William M. Sirola.

May 22nd, 1962.

Mr. J. C. Urquhart,  
ROSSLAND, B. C.

Dear Mr. Urquhart:

I have not been able to give Korr-Addison or yourself a final decision because I do not feel I have a sufficiently comprehensive picture of what has happened at The Velvet Mine in the past. I know, for example, that the mining done by Midwest was too low-grade to be economic, but I do not know where all their mining was done; I do not know if they did any surface geological mapping or geophysical work. I do not know whether it would be possible for us to deal with Midwest when your lease expires. Their President, Mr. Shaw, has agreed to send me their data but I am not entirely convinced that he will do so - he did not appear to be very interested. I am sure that there are legible underground maps prepared by Harvey Cohen, and perhaps others, and these are necessary for an intelligent appraisal of the property. In particular, I would have to know what drilling had been done and what the results were. The copies of the maps that C. M. & S. had are devoid of a geological legend and are not very helpful.

In reply to your question about whether a 2% copper ore is economic, I would have to say that it depends in your case on the mining width and on the persistence of that grade. At Craigmont where the orebody is 100' wide, it most certainly is economic. If your average width turned out to be 5', then it would not be so.

The South end of the ore (?) you have been mining did not have much vertical persistence and I do not know that you could count on much more persistence on the North end. How far the mineralization would extend Northward is anybody's guess. The greater thickness of ore (?) encountered on the 7th level appears to be the result of a fold and these thicknesses could not be counted on above or below that structure.

Mr. J. C. Urquhart

- 2 -

May 22nd, 1962.

I will advise you as soon as possible regarding our  
decision.

Regards,

Yours truly,

KERR-ADDISON GOLD MINES LIMITED

William M. Sirole.

c.c. Dr. P. M. Kavanagh

WMS:rl

P. M. KAVANAGH

W. M. SIROLA

THE VELVET MINE, ROSSLAND, B.C., 82-E,  
TRAIL CREEK MINING DIVISION.

May 17th, 1962.

If, and when, I can obtain illustrative maps of  
The Velvet Mine, I will send them on to you. I am afraid  
I have nothing at the moment that would be of much help.

William M. Sirola.

WMS:rl

TO: DR. P. M. KAVANAGH

FROM: WILLIAM M. SIROLA

DATE: MAY 17th, 1962.

SUBJECT: . . . . THE VELVET MINE  
Rossland, B. C.  
82-E  
Trail Creek Mining Division

On May 9th and 10th, I examined the property known as The Velvet Mine located approximately 9 miles southwest of Rossland on the Cascade Highway. The examination was prompted by a telephone call from Ed. Lovitt who apparently had been visited by Mr. J. C. Urquhart, who is currently leasing the mine from Midwest Copper and Uranium Mines Ltd. As a result of his discourses with Urquhart, Lovitt appeared to feel that the property had merit and dwelt at some length on the widths of ore on the bottom levels, and on the fact that the property is equipped with a relatively new mill. You will appreciate that this latter feature would loom rather large in Ed's thinking.

Urquhart and his partners are in trouble. They need the sum of \$15,000.00, with which they would carry-out development work on the bottom level and put new liners in the ball mill. If they do not get the money their lease will probably revert to the owners within a period of four months. Theoretically, the lease does not expire until May 15th, 1966.

Urquhart and partners have shipped 13,146 tons to the Tacoma Smelter since June 18th, 1960. The net smelter return from these shipments was \$136,255.87, or an average of \$10.35 per ton. The term "net smelter" is used here as the payment made to the leaser's after deducting haulage, smelter charges and royalties. If we deduct \$3.00 for milling, there remains only \$7.35 per ton to pay for mining, general overhead, depreciation etc. In my opinion, there is no marginal profit under these circumstances. I am sure the leaser's would agree with me on that score. It would appear to me that a very substantial increase in milling rate would be required to make a profit from the sort of grade the leaser's have been handling. Much depends/

depends, of course, on the average width of the ore. In the upper part of the mine, the Velvet vein was probably 2' - 3' wide, but produced a net smelter return of approximately \$15.00 per ton in terms of today's metal prices. On the seventh level where the current leaser's have been mining, widths have been considerably better (6' - 15'). These widths are, however, caused by a synclinal fold and would not be representative in any prolonged operation. A representative width might be 5' or even less.

The leaser's have opened a 70' length between the sixth and seventh levels which is open on the north end and which, on the basis of drill cuttings, averages 2% copper and perhaps \$3.00 gold. This ore could extend for some distance upward but judging by past experience, probably not downward. Without adequate maps and reports on past operations, about all that can be said of this mineralization is that it has some possibility of developing into a minable ore shoot. If we chose to be optimistic, we could give it dimensions of 300' x 300' x 5'. This would provide 55,000 tons, using a tonnage factor of 8 because of the heavy sulphide content. The 150-ton mill on the property would consume this tonnage in one year.

Since the ore on the bottom levels is quite magnetic, it is possible that surface magnetic work would provide some idea of the extent of the mineralization to the north of the present face. I do not know if such work was ever done and I have not, as yet, been able to obtain the records of Midwest Copper and Uranium to see what work they carried out. Dr. Pentland was in charge and I believe he is in New Zealand. The ore in the upper levels of the mine was non-magnetic and consequently mining there may have been done on a different vein. By the same token, the metal ratios in the vein may have changed between the top and the bottom of the mine.

Published production from the mine to 1943 amounted to 58,000 tons containing 0.294 ozs. of gold and 1.35% copper. Urquhart advises that in the period 1939 - 1943, when the property was under lease, \$500,000 worth of ore were shipped in Tacoma - he claims to have got this figure from the Tacoma Smelter people. In the interval 1955 - 1960 Midwest had the property and made the following shipments: 21,843 tons averaging 0.078 Au and 1.1% Cu. They could not possibly have made any money at those figures except from the Stock Market.

#### CONCLUSIONS:

Only the mined-out upper part of the mine was sufficiently high-grade to be minable at a profit.

It/

May 17th, 1962.

It would be a comparatively easy matter to continue development northward of the mineralization between the sixth and seventh levels. Were such a move undertaken, it would have to be done in the hope that the mineralization encountered would be higher grade than that which currently exists on the mine. It is not really possible to accurately state the probable potential of this property without access to previous geological data. The higher gold values in the upper workings could easily be related to some geologic feature of which we have no knowledge at present.

No further work is recommended until existing geological reports can be studied. On the basis of past performance, the outlook would not appear to be too bright but it should not be dismissed entirely.



~~WMS~~ William M. Sirola.



Rossland, B.C.  
May 12th, 1962

William M. Sirola, P.Eng.  
319 United Kingdom Bldg  
Granville Street  
Vancouver, B. C.

Dear Sir;

The total tons of mill feed is 13,146 tons.

Totaling the smelter returns in a hurry my wife is of the opinion she added the two shipments from the last twice- am enclosing a new list. Total \$136,255.87.

Yours truly,

*J.C. Macpherson*

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1,	1	6	6	.0	8		
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1,	7	1	2	.2	1		
2,	2	0	2	.9	8		
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2,	3	9	8	.4	9		
2,	3	7	7	.5	4		
1,	9	4	4	.6	3		
1,	5	9	8	.9	9		
1,	4	4	1	.8	9		
1,	1	8	3	.5	3		
	7	4	0	.1	4		
	7	5	0	.6	2		
	6	9	4	.7	6		
	5	3	4	.1	6		
	8	6	5	.8	3		
	8	4	1	.3	9		
	8	3	4	.4	1		
	7	8	5	.5	3		
1,	8	8	8	.8	8		
1,	5	3	2	.6	6		
1,	9	1	4	.7	1		
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4,	4	4	9	.6	3		
5,	4	7	2	.2	1		
4,	2	4	6	.1	2		
5,	6	8	5	.6	0		
5,	1	0	8	.7	8		
5,	0	1	9	.0	0		
5,	3	8	2	.6	6		
5,	4	7	8	.7	6		
4,	9	1	5	.5	9		
3,	5	4	6	.4	6		
3,	6	3	3	.7	9		
2,	3	6	1	.0	6		
2,	5	6	3	.3	4		
3,	3	6	2	.2	8		
2,	5	2	1	.5	2		
3,	6	2	8	.0	5		
3,	3	0	6	.3	8		
3,	1	6	7	.4	8		
3,	1	7	2	.5	9		
3,	1	1	5	.3	7		
3,	7	6	7	.1	4		
3,	7	3	1	.2	0		
2,	0	0	1	.8	2		
3,	5	3	3	.1	8		
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1	4	4	.6	0			
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1	2	9	.2	4			
1	0	8	.4	5			
1	0	7	.5	5			
1	2	6	.5	2			
1	3	9	.1	8			
1	3	0	.1	4			
	9	2	.1	8			
	9	2	.1	8			
	6	0	.5	5			
	6	5	.0	7			
	9	3	.0	9			
	6	3	.2	6			
	9	6	.7	0			
	8	6	.7	5			
	8	4	.0	1			
1	0	4	.3	7			
	9	2	.0	9			
	8	9	.8	6			
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3	5,	5	8	5	8	0	0	*
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The Corporation of the City of Rossland

NS

OFFICE OF THE MAGISTRATE

ROSSLAND, B. C.,

May 8th.1962.

Wm.M.Sirola Esq,  
Kerr-Addison Mines Ltd,  
Vancouver B.C.

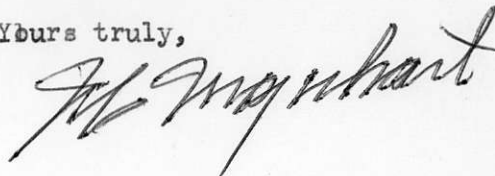
Dear Sir:

Enclosed are two reports we have on  
previous operations at the Velvet Mine.

Our lease distinctly states we were  
to have any reports Mid West have of the  
property so they should give them to you.

I hope these will be of some value.

Yours truly,



WS

Rossland, B. C.  
April 19th, 1962

Wm. Sirola, Esq  
319-409 Granville St  
Vancouver, B. C.

Dear Sir;

The Velvet Mine consists of 8 Crown granted mineral claims owned by Mid-West Copper & Uranium Mines Ltd and, under lease by the Velvet Leasers. It is situated on the main Southern transprovincial highway and is accessible all year.

A six year lease was obtained , of which, four years remain.

During the first two years concentrates were shipped to the smelter at Tacoma containing 864.5 oz of Au, 2782 oz Ag and 371,551 pounds of Cu. This was recovered from 13,400 tons of milling ore. Of this a portion was obtained from development work and some dilution was unavoidable.

Considerable ore is exposed in the mine. The most interesting is a body opened up above the 7th level. This face has been opened up for 70' and, is from 6' to 13' in width. It has all indications of continuing to the North. This chute of ore is in new ground and, could have a stoping distance of better than 500'. Some ore was removed from this point for milling but, hauling costs were high. A small development program could put this ore to the main haulage and, should make a profitable operation. This development would require, approximately, 200 ' of drifting and 140' of raising for an ore pass.

Equipment on the property consists of 150 ton mill, crushing plant, 500 and 315 cu ft compressors and, necessary mining equipment.

We have West Kootenay power.

We pay 15% royalty, which includes rent for all equipment until \$3,000.00 is paid in any one year, then, it is reduced to 12% when we pay our proportion of the years taxes.

Our concentrates are trucked to Tacoma for \$15.00 per ton, which, is a considerable saving over the rail charges, etc.

If you are interested we could meet you in Merritt any evening- or we would like to have you come and see this operation.

Thanking you for your interest.

Yours truly,

362-5100 Home  
Mine

Velvet Leasers

Per *J. L. Macpherson*

Location 6 1/2 m. S.W. of Rossland.

P. M. KAVANAGH

WILLIAM M. SIROLA

VACATIONS

December 20th, 1961.

Tom and I will take a week's vacation beginning  
January 2nd and will be back to work on January 9th.

We will plan the other week before the beginning  
of the active field season.

Regards,

WILLIAM M. SIROLA.

WMS:rl

1901-53

Valuet Mine

	<u>Au</u>	<u>Ag</u>	<u>Cu</u>
<u>57,904</u>	17,157	14,851	1,640,144
	0.3	2.6# = + <del>3</del> 10	28# = 1.4%
	\$ 10 <sup>00</sup>	2 <sup>00</sup>	6.50

Grade = \$ 18.~~50~~<sup>00</sup> net Smelter

Mining = 10

Mills = 3<sup>00</sup>  
\$ 5 Ton

13,400 tons in 2 yrs.  
= 6,700 / yr.

Grade =

Au = .65 = 22.50

Cu = 28# = 1.4%  
6.50  
\$ 29.00

200' depth:

12,000

140' of raise

4,200

\$

16,200.

Require \$15,000

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6 1/2 miles S.W. of Roseland.

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Velvet Mine - Ed Hunt  
Leasor Ltd

New 150 ton mill  
Midwest 56457  
~~E G U~~

J. C. URQUHART

Home. 362-5100

362-5924

Rosland B.C.

15,000 wanted

Call Urquhart - 1

4 years May 15-62

License ends 1966.

JMS - Bob Armstrong  
Leo Telfer



8  
500,000

Stanley  
Lone Star - Smith Greenwood  
640,000 tons of P&Cu - not mined + 1%  
I.P.'d section smthly order.

Route  
volcanic.

Rocky Order -

2 Canadian claims should be covered.  
one drill hole.

Peck 12 in.

Option - no payments until October.  
Small participation -

408  
402 W  
Rendv

October - \$5,000 Alward Copper

Lehigh Mine

Lease - May 15/60 - May 15/66

- 15% Royalty reducing to 12% after  
payment of 3000.

Property can be idle 4 months without  
penalty.

Production: 1939-1942. Leases produced  
500,000 worth of ore from Tacoma  
records.

Production 1953-60. Down in 1958.

Drill - 150 ton flotation -

Aerial tram from portal (800 level).

One reserve - No blocked out ore.

Two possibilities - 70' length  
with av. thickness of 50'  
on north end av. 6' in width - open to north  
on south length undetermined - thickness undetermined

Grade - North end - Approx 2% Cu - 500 Au

South end - " 2.5% Cu - 1000 Au  
or more.

Possibilities - No Trend

How far might <sup>the west</sup> ~~the~~ <sup>have</sup> ~~been~~ extend north?  
Depends on gneiss - gneiss contact.

Southward - Possibility of more extension  
south.

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 porphy is only exposed in three of the upper levels-#1-2-3. These are the only levels where 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 of 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 Silicious 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 noticable in the upper and richest levels of the mine.

DEVELOPMENE AND WORKINGS:

The Velvet Mine is opened by a shaft 620 feet deep and, 8 levels- #1-2-3-4-5-6-7-8. 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. #1,2,3 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 raise 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 characteristic 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 formation was massive pink 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 chipped 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 as 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- .7 silver and .32 gold. This proves beyond a question of 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 above mentioned 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 horse 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. A sample taken across the  $3\frac{1}{2}$  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, worked 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 the hematite was very prominent and always present wherever the was strongest and, especially, in the old stope from which the richest ore was extracted. The copper stain was also 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 Kelly 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 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 at the 400 foot 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 should be intersected. On the 500 level east of the new drift that has been run and continuing further north, it would project through down 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 level 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 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 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 and iron sulphide. This characteristic is the one clew to the Kelley Stope as that is easily traced. I noticed this particularly at certain points on the 500 level and 800 level. The Kelley Stope also shows two very distinct walls. This 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 degrees turn was made and the drift continued for 50 feet. From there the drift was again continued 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 savings of the values not very profitable. Work was discontinued in this stope. I approve of this. This vein is, beyond a question of 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 continued. The same type of prospecting was done South of the Kelley Stope on the 300 as was carried 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 North 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 or ore as the stope that was so disappointing in the foot wall 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 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 at the Velvet Mine.

The cars and <sup>p</sup>equipment 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 costly.

DECOMMENDATIONS : Assays were taken from the 800 up to the 400 levels. The average assay of the 800 was \$14.18. The average assay for the 600 was \$38.01. The average for the 500 was \$31.39 and the average assay for 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 for 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. These assays prove beyond a question of a 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 horse 2' thick making a total width of  $3\frac{1}{2}$  feet. In running the stope the method of extraction that has been practised 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 stope 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 1 inch. Twelve stringers one inch thick across a twenty foot face, for every foot of vein would give twenty 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, twenty feet long and five feet deep, giving a total cubic footage of 500 cubic feet, and out of this 500 cubic feet you only have 100 cubic feet of good ore. This all mixed together and instead of having a mill head of \$30.00 or \$60.00 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 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 min. This is impossible with the present compressor and equipment to furnish the 100 ton mill. However, by working these types of veins and sorting the ore from the waste and just milling the good grade of ore it is possible to operate the 100 ton mill with the present equipment. With the type of veins and stopes that you are now working to keep the 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 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 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 is needed.

I do not think it is necessary to diamond drill these lower levels for the simple reason 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 extension 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 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 of 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 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 \$15,000.00. 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.

SIGNED :

Jean M. Peters

Mining Engineer & Geologist

REPORT ON THE VELVET MINE  
Rossland Area, B.C.  
January 1947

copy

LOCATION :

The Velvet Mine is ideally located on the Northwest slope of Sophie Mountain facing Corral Creek, which is a tributary to Big Sheep Creek. In a straight line the property is approximately seven miles Southwest from Rossland, B.C. and, is about, eleven miles along the highway between Rossland and Grand Forks, B.C. Directly South about one mile is the International Boundry between the United States and Canada.

The camp occupies a small area of bench land some 1,000 feet or more vertically above Corral Creek level, and from this position the shaft was sunk, starting practically on the vein outcrop, and although the original development was through the shaft, the location is ideal for testing the veins to a depth of 1,000 feet or more by adit tunnel.

The collar of the main shaft is at an elevation above sea level of 3,612 feet, and this shaft extends vertically 525 feet to the number 6 level, which, is connected by raise from the Number 8 level 165 below. The Number 4 adit tunnel was started almost due North from the shaft at an elevation 332 feet vertically below the collar, and, connects with the shaft workings at a distance of 1,450 feet.

The adit tunnel Number 8, which is the deepest working on the property, starts at a point on Corral Creek slope in a direction slightly South of West from the shaft collar, and, at an elevation 685 feet vertically below it.

The holdings include a section of the Valley on both sides of Correl Creek which, may be classed as farm land, or could be used for tailing disposal should a mill be built below the number 8 level.

Water for domestic purposes comes from a stream above the camp, which is distributed from a main storage tank by pipe line to the mill and other buildings. This is also supplemented by a pipe line from the portal of Number 8 tunnel where an electric pump is installed.

The West Kootenay Power Line extends into the camp and, past operations were supplied with power from this service.

The camp is also connected with the B. C. Telephone service at Rossland.

PROPERTY :

The following mineral claims and other property are either held by, or included in the option to Geo. Coryell, Jnr, who will convey them to a new company when formed.

<u>Mineral Claim</u>	<u>Lot No.</u>	<u>Acres</u>	<u>Crown Granted</u>	
Portland	2523	45.43	"	"
Last Chance	3027	17.96	"	"
Whoop Up	3324	51.65	"	"
Blue Bell	5206	50.48	"	"
Velvet	2521	39.85	"	"
Velvet Fraction	3205	7.43	"	"
Tootsie	3325	43.00	"	"
Copper Wonder	3493	28.28	"	"
Princess	4669	29.73	"	"

<u>Surface Rights</u>	<u>Acres</u>	
Sub Lot 230	46.59	On Portland M.C.
" " 233	39.02	" Velvet M.C.
" " 162-163	605.5	Area East of Camp
" " 234 (North half)	200.	Correl Creek Valley

HISTORY :

The Portland Mineral Claim was the first location on April 3, 1896 and the Velvet was located September 12, 1896. In 1897 an English Company represented by Sir Charles Tupper secured the Velvet and other claims, and by 1899 development on the Velvet consisted of over 1,100 feet of underground work. On the adjoining claim a shaft had been sunk 147 feet with 250 feet of drifting. The combined crews at that time consisted of 37 men.

In 1902 operating expenses were paid out of ore receipts, after shipments

started to the Hall Mines Smelter at Nelson, B. C.

The old Company spent over £20,000 in development and extended the main shaft to the 300 foot level, total development at this time amounted to over 2,000 feet.

Work was suspended in 1903 and Management changed.

A tunnel was then driven about 1450 feet for the purpose of draining the mine, and this tunnel connects with what is known as the No four level.

In 1904 the Velvet-Portland Mining Company constructed a small mill using straight water concentration. The plant included two crushers, six gravity stamps, six steam stamps, five Jenkes concentrating tables.

In 1905 no work was done other than running the mill three days.

In 1906, 15 men were employed for a few weeks during the early part of the summer. At this time, drifting on the No four level showed 110 feet in ore, but, work had to be suspended on account of lack of funds.

In 1909, 188 tons of ore were shipped and in 1910 the property was leased to Ed. Ehrenberg of Spokane, who shipped 664 tons of good grade ore.

For the next few years only limited work, if any, was done.

In 1918 the Granby Consolidated Mining & Smelting Company had a bond and lease, and, it is said, they pumped out the lower levels and, put in some diamond drill holes below the 600 level and disclosed an important body of sulphide ore. Later they relinquished their option and the property again lapsed into inactivity.

In 1920 the property was acquired by the Rossland Velvet Mines Ltd and in that year between 400 and 500 tons of ore were shipped to Trail and Northport Smelters.

In 1921 55 tons were shipped to Trail of ore extracted from stopes in the upper levels South of the shaft. To this time this area had proven the most productive in the mine. The upper three levels were in a zone of marked oxidation, which extended in places to the fourth level., where the first sulphide ore was encountered. In the zone of oxidation the principal values were in gold.

This Rossland Company continued efforts toward taking out ore that may have been previously overlooked in the upper workings, and planned to drive the No 8 tunnel, which, they completed in 1926, to a reported length of 1,730 feet.

Early operations up until this time were handicapped by the use of steam power supplied from wood burning boilers. Transportation was a serious problem until overcome by the completion of No 8 tunnel, which provided drainage of the shaft workings, water difficulties had been a great hindrance in operations.

Records covering the intervening period are lacking and, apparently little work was done until the Velvet Gold Mining Company instituted by Geo. Coryell Jnr of Seattle, Wash. took over in 1932. Preliminary work included renewal of the old water supply, branch road improvements, cleaning up and repairing buildings and equipment.

Mining was carried on in the shaft workings on the No 1, 3 and 4 levels, from which two car loads of sorted ore aggregating 80 tons were shipped in 1933 to Tacoma. This was not found profitable and, it was agreed, concentration probably would have to be resorted to before further shipments were made. Machinery, was therefore, acquired from the Surprise Mining Co at Rosebery, B.C.

As a matter of record, it might be stated here, that the recorded tonnage from 1901 to 1927, including small production from the Portland workings, totalled 7,796 tons, which contained 6,070 oz gold, 6,612 oz silver and 594,803 pounds copper.

Records are somewhat complete between 1932 and 1936, however, in 1936 the mine operated irregularly during the greater part of the year and, underground work was undertaken on a systematic scale only in the month of November. An improvement of importance was the abandonment of the old wood burning boilers and, electricity was supplied in its place from the West Kooteny Power and Light Company. A new bunkhouse was erected.

In 1937 the new mill was at 100 tons daily capacity, and 7,984 tons were mined and milled during 142 days of running the mine and 132 days of milling.

In 1938 operations were carried on by the Velgo Mining Co of Spokane and, this company put the raise through connecting NO 8 level with the No 6 and, thereby dewatered all the shaft workings. Later a lease was taken by R. Bielli and associates of Rossland who shipped a small tonnage to Trail.

In 1939 the Velvet Leasing Syndicate consisting of H. Elmes and associates of Rossland took a lease on the property and, operated continuously for the greater part



of the year. This syndicate carried on until 1943, during which time they completed over 2,000 feet of underground work in drifting, crosscutting, raising and around 4,500 feet of diamond drilling. Over 30,000 tons of ore were milled and 6,334 oz of gold and 4,277 oz silver recovered, according to records, with the addition of copper, of which I have no records.

As mentioned in the first part of this report, the recorded production of this property to date is 17,073 oz gold, 14,357 oz silver and 1,572,999 lbs copper from 57,836 tons of ore.

Until 1946 a watchman was kept at the mine which was otherwise closed down.

In 1946 Geo. Coryell Jr and associates embarked on a diamond drilling program completing 7 holes on the No 8 level, aggregating 1,436 feet, and 4 holes from surface, totalling 565 feet. At the completion of this work the property was again in the hands of a watchman, and Mr. Coryell and associates are planning a campaign for further operation of the property.

PRODUCTION AND ORE VALUES :

Available figures show the total production of the Velvet Mine from 1901 to 1942 inclusive to be :

<u>Tons</u>	<u>Gold- Oz</u>	<u>Silver-Oz</u>	<u>Copper- LBS</u>
57,836	17,073	14,357	1,572,999

During the mine's development considerable tonnage was put into ore dumps, some of which has since been milled, but, apparently the results were not entirely satisfactory as a large proportion of these dumps still remain intact. They were not sampled, however, reports by other engineers indicate some ore was milled, assaying .20 oz gold, 1.07% copper, and from this mill feed, concentrates produced, assayed 1,345 oz gold. It is stated the recovery was about 75% of the gold and 71.04% of the copper and, that oxidation of the dump ores may be partly responsible for the low recoveries.

The total production figures indicate shipments of ore assaying .29 oz gold, .24oz silv 1.36% copper. An arithmetical average from thirty shipments show .57 oz gold, .91 silver 2.76% copper. One of the highest cars of 35 tons assayed .91 oz gold, 1.97 oz silver, 7.9% copper. Another shipment of 123 tons of concentrates shows and assay value of 1.29 oz

.90 oz silver and 4.8% copper.

A record of assays made at the mine from May 21st, 1934 to Dec 8th 1934 shows the following arithmetical averages and, demonstrates the type of ore values encountered during development. They represent variable kinds of sample such as car samples, muck, face, dump and bin samples etc and were run as part of the daily routine. The record as given to me is as follows:

<u>Place where taken</u>	<u>No Assays for gold</u>	<u>Average Au.Oz</u>	<u>No Assays for copper</u>	<u>Average Cu %</u>
100 level	122	.70	81	2.12
200 "	26	.53	21	2.68
300 "	118	.55	76	2.75
300 Intermediate	85	.93	72	3.37
400 level	73	.51	42	3.39
500 "	4	.94	2	3.57
600 "	10	1.31	7	6.27
Upper Portland	68	.65	55	3.22
Misc.	98	.49	49	2.43

ORE POSSIBILITIES:

The mine as history shows was worked under various types of operators, by companies, lessees, etc. It appears the first company piled a certain amount of development ore on the dumps in anticipation of milling it later and, after the first mill was constructed most of the ore came direct from the mine to supply it, as a result, a considerable dump tonnage was left for future consideration. Other operators made direct shipments from the mine to the smelters, and after the old mill had been changed over to more moderate methods, larger tonnage was treated on the property. The copper content of the ore made it necessary to ship to Tacoma instead of to the nearby smelter at Trail, B.C., involving higher transportation costs, etc and, as assays indicate a high grade concentrate was not produced which is probably the most outstanding reason why the mine was not worked more continuously. It likewise required careful selecting in order to maintain sufficiently high grade mill feed to provide any profit in such a grade of concentrates. As stated, some dump ore has been milled, but, there is, however, considerable left for further consideration.

As to the mine, most of the better ore in sight has been removed and, the mine's future depends on further development.

The ore bodies, as the workings indicate, are lenticular and irregular in size and

shape and, for this reason, it is quite possible that all such pockets have not been worked out. A considerable portion of the mine is now caved and complete maps are not available but, from the data we have been able to procure, it appears that high grade lenses were followed until worked out and, then such areas abandoned. This method of mining which is more of the leaser method would be apt to miss some of the ore zones that would have been disclosed under more systematic direction. A study of the maps show that what was first considered the main vein was mined where it dipped into the shaft between the first and second levels. The second, third and fourth levels crosscut out to parallel foot wall veins and, apparently, these veins were given the most attention on to the 6th level. The main vein from the appearance of the map has not been tested on the West side of the shaft and, this area could well be further prospected between the second and sixth levels.

Consideration should be given to the parallel foot wall veins, such as the extension North of the Portland vein which, seems to line up with the limited workings of the assay office vein 500 feet distant along the strike. Further testing is advisable of the staff house vein which, is 250 to 300 feet in the foot wall from the main vein system and, is shown by diamond drill holes to persist to a depth of, at least, 200 feet along a strike of 160 feet. I suggest further diamond drilling on these veins and, there may be good possibilities to the South between the Portland shaft and the old Portland tunnel workings. Before this part of the program is entered into it seems imperative that a careful geological examination with mapping should be done. Diamond drilling underground has disclosed what appears to be the extension of the vein to the No 8 level, but, the intersections, although showing some assay values, were not fortunate enough to hit any commercial lenses. Further diamond drilling is also advised from this level and, can be done more intelligently now that more complete maps are available and, as to this part of the program I likewise recommend a careful geological map be made for guidance of the work. Therefore in conclusion re the ore possibilities we have the following :

An undetermined tonnage on the dump to be first carefully sampled.

Extension of the ore body of the main vein from the No 2 level to the No 6 on it's dip West of the main shaft.

With improved milling facilities further mining of ore that may have been left in the old workings because it was too low grade under the conditions it was being worked.

Careful and systematic examination and geological mapping, along with diamond drilling has possibilities of disclosing ore not previously opened in the old mine and, likewise possibilities on extension of the veins laterally, as well as in the adjoining foot wall streaks.

It is quite clear that the mine is not ready for immediate production on a permanent basis but, it's past record shows a good tonnage of ore was extracted and, under conditions which certainly were unfavorable compared to the present day, especially as to treatment of the ores by milling. Therefore, considering past production, geology, untested ground, etc it is my opinion the property justifies systematic investigation, including thorough mapping and testing by diamond drilling and, with this kind of a program the gamble is favorable.

As the mine now stand it also appears leasers, or small operators could enter the mine and find ore in a smaller way, however, for the longer and company point of view, development of new, and extension of old ore bodies is what should be the objective.

In general the ore may be termed a copper-gold ore with values being found in both chalcopyrite and iron sulphides.

Analysis of ores shown in Government reports for illustration purposes gave the following results:

	<u>Ore from No. 3 level</u>	<u>Ore from No. 4 level</u>
Gold	0.61	0.52
Silver	2.39	0.30
Copper	13.30 %	0.60
Iron	27.60 %	16.70
Silica	26.60 %	46.50
Sulphur	19.80 %	

This same report states the values in the ores fluctuate very rapidly, in some localities running high in gold and low in copper and, in others the reverse is true.

Considerable oxidation appears in the upper levels and, in places extends to the No 4 level.

MINE DEVELOPMENT :

The accompanying maps illustrate in detail the various workings but, for general purposes the following outline is given.

The main three compartment shaft is sunk vertically 525 feet to the No 6 level. From here a short crosscut into the hanging wall connects with an incline raise 178 feet long that connects No 8 to No 6 level and, also serves the No 7 level.

From surface to the fourth level the vein has been developed by drifts from the shaft along the strike of the vein for over 800 feet. The No 5 level is shorter being about 550 feet in length and, the No 6 level follows the vein strike about 400 feet. No 7 is mostly crosscut of about 100 feet, with 35 feet of drift. The No 8 adit is a crosscut tunnel around 1,730 feet in length, from which, the incline raise is driven at the end of the tunnel, connecting it with the 6 level above. A vein was crossed around 1,425 feet and, about 100 feet of side tunnel extends to the right, of which, 60 feet is along vein strike. In addition to the above is the No 4 adit now caved, which extends 1,450 feet to the shaft.

DIAMOND DRILLING :

Different diamond drilling programs are reported dating back to 1918 when the Granby Consolidated Mining and Smelting Company did some drilling below the 6th level and, it is reported than an important body of sulphide ore was encountered. The next drilling program was done by the Velvet Leasing Syndicate between 1939 and 1942, during which time there was completed around 4,500 feet of drilling. In 1946 the present company drilled 7 holes from the 8 level aggregating 1,436 feet and, 4 holes were put down from the surfact with a total of 565 feet.

Unfortunately no records are available of any drilling results other than that done by the present company.

Diamond drill hole No8-1 put in by the present company was started from the drift South on the 8th level at a point about 10 feet back from the face. It was drilled horizontally in a South 64 degree East direction for 402 feet. At 104 feet a mineralized intersection a foot wide showed bands containing chalcopyrite, a selected sample of which assayed .21 oz gold and 6.1% copper.

Another intersection at 236 feet showed 2 inches with some chalcoc<sup>p</sup>rite that assayed .10 oz gold- .97% copper in an area several feet wide where fine specks of iron sulphide were apparent.

Both of these intersections were in the projected position of some of the foot wall veins, the first, could be the downward extension of one of the foot wall veins of the main vein system, and the second, projects more in the position of the staff house vein. Neither intersection in itself gave commercial results but, both indicated vein position on this level.

Holes Number 4 and 7 driven in parallel positions to the Number 1 hole on the 8th level, both cut what appears to be the first vein, showing a length on strike of over 160 feet. Mineralization in the Number 2 hole driven from the face of the main crosscut may be the same vein as the second intersection in the Number 1 hole. Hole No 3 driven upward at an angle of 30 degrees from the drift at the bottom of the long raise also cut sections of mineralization which, could be veins shown in levels above.

The number 5 hole gave no information and, would have been in a better position if drilled from the next short drift 100 feet farther in the main crosscut. I would then have tested the Northerly strike of mineralization shown in drift Number 1 to the North. Such a hole should be drilled at the first opportunity.

The diamond drilling underground from the 8th level failed to show commercial intersections, however, it did disclose vein positions and, the information is not conclusive because of the pockety nature of the ore deposits.

The surface diamond drilling consisted of 4 holes aggregating 565 feet. The first 2 holes were drilled for the purpose of establishing continuity both in depth and laterally of the Staff House vein which, was disclosed in a shallow pit. Both holes intersected the vein at a depth of around 160 feet vertically below the pit outcrop with Number 1 hole intersecting the vein 220 feet on it's dip and, the two intersections indicate vein continuity along the strike of 150 feet or more. Both holes also crossed what appears to be a parallel vein 100 feet distant in the hanging wall. Selected assays from the Staff House intersection - hole Number 1-.24 oz gold, .48% copper from a vein 4 feet wide. The hanging wall vein contained a section, partly oxidized, and, the balance showing some

spectacular hematite, pyrite and chalcopyrite- assayed .28 oz gold, .48% copper. These intersections indicate continuity of the Staff House and parallel veins and, are of sufficient interest to justify more explorations.

Number 3 hole was abandoned at 74 feet because of difficulty in drilling.

Number 4 hole went through 1 foot of mineralization from which an assay gave .24 oz gold, 21.78% copper, indicating a vein that would outcrop just above the bunkhouse and, by projection along its strike lines up with the assay office vein 280 feet distant.

These diamond drill holes underground, and from surface, although not intersecting commercial ore bodies, have established vein positions with assay values showing mineralization and, in diamond drilling veins of this character it must be remembered that the mined sections proved the ore zones were in pockets and lenses and, therefore, could easily be missed in drilling.

GEOLOGY :

Generally speaking the Velvet is well located in a district of large mines, with somewhat similar geological conditions and, its production likewise shows a gold, silver, copper ore associated with iron sulphides.

The property has, within a zone about 400 feet wide and, along a distance of around 1,000 feet, established several fissure veins with a general North and South strike and, dipping steeply to the West, and, it also appears that avenues extend in places obliquely from one vein to the other, so that, for descriptive purposes it may be termed a composite vein system, irregularly mineralized, with ore bodies of different sizes and shapes, occurring in any one of the veins, in different positions, as is shown by the fact that original work on what was known as the main vein only extended slightly below the No 1 level. Development on No 2 level appears to have left the main vein and, efforts were extended toward veins farther into the foot wall and, this same pattern of jumping from one vein to the other seems to have been the procedure which, probably resulted from the lenticular nature of the ore bodies and, the interlocking or avenue connections in the vein system.

The fissure veins are termed replacement veins with wall rocks impregnated for some feet and, they parallel a system of dykes, some of which are termed pulaskite tongues

from the underlying Coryell batholith. The general country rock for the purpose of this report may be classed as greenstone of the Rossland volcanic group.

It may be stated here that in detailed mapping special attention should be paid to the position of the different dykes and, their relation to the ore bodies as this will help guide future exploratory work.

The size and shape of the ore shoots very considerably from a few inches wide up to several feet and, impregnation of values into the walls gives the impression in places of wider ore bodies than would be mined in the general run of work and, on the other hand in case of dilution some values could be expected.

Reports indicate that the upper three levels were in a zone of oxidation that extended to a large extent down to the No 4 level. In the oxidized area most of the values were in gold and, concentration of sulphide were undertaken where the values were too low grade for direct shipment to the smelter.

#### MINE METHODS :

Original development was first by shaft sunk vertically to the 6th level from which levels were run along the veins.

Two adits were later put in, the No 4 adit apparently was run from surface to connect with the underground 4th level but, although it does connect, there is a vertical jog that prevented continuous haulage. This tunnel is now caved. The No 8, which is the deepest main adit, affords drainage for the shaft workings and, any development on the lower workings would be from this level. Additional depth of a few hundred feet is possible by adit when further ore disclosures justify running such a tunnel.

#### MILL :

Attached is a print showing the general flow sheet of the mill as prepared by Mr. G.H. Grimwood, Metallurgist of Nelson, B.C., who accompanied me on a trip of inspection.

Although the mill has given certain results in the concentration of the ores, it is quite clear that a higher grade concentrate would result in a definite saving in freight and treatment charges and, therefore, it is advisable that every effort be made, when the time comes, to improve these results. When sufficient ore has been established to again consider milling, it would then be advisable to have all details of the milling checked



by some capable Metallurgist.

SMELTING :

Because of the copper content of the ore it is necessary to ship to the Tacoma Smelter in the State of Washington and, as above stated, because of freight and other costs it is advisable to produce the highest grade of concentration possible.

SURFACE AND GENERAL EQUIPMENT :

The property has a good camp capable of housing about 20 men in the separate bunk and cook houses. In addition three cottages are also used in housing families and, what is known as the staff house could be renovated should the occasion warrant, and, it could take care of several more people. This building when originally built many years ago was an elaborate affair- constructed for the English directors. There is a hoist house adjacent to the vertical shaft, equipped with a double drum electrically driven hoist of sufficient size to handle any work that would be done through this shaft. Another building is used as a blacksmith's shop near the shaft collar and, another acts as mine dry. One or two other structures are used for different purposes. The mill is located within a short distance of the shaft adjacent to the public highway.

The West Kootenay power line extends to the property and, the telephone lines connect with the B.C. Telephone branch service at Rossland.

An electrically driven Gardner Denver compressor is of sufficient size to run at least two machine drills and, was used during the mining operations done by the leasing syndicate.

Water is connected by pipe lines to the different buildings.

The camp buildings have been well looked after and accommodation for at least 20 men could be provided with little preparation.

The West Kootenay Power have removed the transformers and, until new arrangements are made for again installing such equipment there is no electrical power available. Recent diamond drilling was done by air supplied from a rented gasoline driven compressor.

FINANCIAL :

This part of the program was not gone into but, it is understood the present owners will require assistance either from the sale of stock from a public company to be formed or,

from some mining company who wishes to participate in such a venture.

CONCLUSIONS :

The Velvet Mine is located in a good geological area, in some respects similar to that of Rossland and, past developments have shown the existence of ore bodies from which about three quarters of a million dollars were recovered, representing the gross value when calculated on today's metal prices. Additional ore was stored in the dumps and, some of the lower grade ore was left in the mine. There is also the possibility of unknown ore shoots.

The work/<sup>was</sup>carried on by different companies- the first ones spent considerable money in sinking the shaft and equipping the mine and camp, also in the construction of a stamp mill. Some ore was shipped direct to the Smelter which, provided operating expenses. Milling was not satisfactory in the original plant which, later was re-modeled with more up to date methods and, by a different company. Later operations were more on a leasing basis. History, therefore, shows that no definite program was followed through at any one time which, may be responsible to a certain degree for the operation not being as profitable as it may have been. As it now stands many of the difficulties have been ironed out and, the most important problem facing them is the outlining of additional ore bodies, including sections overlooked in past developments and, in extensions laterally, and in depth of the original favorable zones, likewise testing the parallel veins.

In outlining a program, the property should be carefully mapped geologically with special attention paid to all dyke boundaries and, other such structural features as may be a guide to an extensive diamond drilling program. Holes should be drilled at close enough intervals into the parallel veins, from suitable surface positions, to test them along their strike and, in depth for a distance to be determined by previous mapping and, from the results of the diamond drill holes as they progress.

There is one noticeable feature in examining the mine plans, which is, that development along the productive zones in the top levels was along the vein strike for a distance of 800 feet, whereby the deeper levels show lesser distances, being only 400 feet on the 6th level and, practically no development along the vein on either the 7th or 8th level. I do not know of any geological feature that has been established to cause lack of

development at these depths and, certainly future work should make this testing one of the major issues. I would think it also advisable in the diamond drilling program to put a few holes to depths below the No 8 level.

Therefore, in conclusion, I consider the property justifies, first, an extensive diamond drilling program to be based on careful mapping and consider a minimum of \$50,000 should be raised for this purpose which, would also take care of preliminary machinery and equipment. The results of this work would determine the next step and, any company to be formed should have a structure that will be flexible enough to allow financing of any larger program.

In a venture of this kind I do not recommend, as has been the past procedure, any short sighted program that will not adequately give definite results for the determination of the next step.

As a mining speculation I consider this property should be thoroughly tested as outlined.

Nelson, B.C.  
January 8th, 1947

SIGNED:

Harold Lakes  
Registered under the  
Engineering Profession  
Act of British Columbia