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REPORT ON
PINNACLE MINES LIMITED
PROPERTY
KAMLOOPS AREA
By: J.A. Mitchell, Feb. 1972

REPORT
ON
THE PROPERTY OF
PINNACLE MINES LTD. (N. P. L.)
KAMLOOPS MINING DIVISION
BRITISH COLUMBIA

by
J. A. Mitchell, P. Eng.

Vancouver, B. C.

February 1st, 1972.

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IN POCKET - 4 maps to illustrate report.

REPORT ON DATA SUPPLIED CONCERNING
A, C, CLE, PIN AND ART GROUPS OF CLAIMS

INTRODUCTION

The writer was requested by the President of Pinnacle Mines Ltd. (N.P.L.), owner of the above claims, to review material available in the Vancouver office of the Company, to make recommendations for further work and to concur or otherwise comment on the report of C. T. Pasieka and J. B. Prendergast.

It is evident that maps and details of past work are not all available at the Vancouver office and there is nothing to indicate the final outcome of work done in 1969 or 1970 by Umex, the Canadian arm of Union Miniere Explorations & Mining Corporation Limited but it is understood this work proved to be inconclusive. It seems evident however that little or no attention was devoted to the south end of the property which covers the generally favorable contact of the batholithic rocks with the older Nicola rocks. It seems that work has been concentrated towards the central axes of the batholith in the north half, probably because mineralization has been found there and has been reflected by geophysical and geochemical surveys the results of the latter are not available to the writer but for reasons given later may be suspect and should take a subsidiary position to geological considerations which will be briefly reviewed.

Location and topography are favorable and except that mid-winter conditions may hamper some surface exploratory work the climate is not unfavorable. Deep overburden including varying thicknesses of glacial till can be a problem, particularly in valleys. It is therefore important that as much data as possible be obtained regarding the nature of the overburden in areas of potential so that geochemical and to some extent, geophysical data can be used intelligently in the placement of diamond drill holes to explore the bed-rock.

SUMMARY AND CONCLUSION

Pinnacle Mines Ltd. (N.P.L.) controls a large block of claims at the south eastern tip of the Iron Mask Batholith on which copper mineralization has been found. Initial efforts to prove up a large tonnage of economic mineralization have been frustrated by deep overburden which apparently involves glacial till. However the geological setting is an excellent one which involves repeated intrusions of varying composition into older rocks involving a volcanic-sedimentary contact and intersecting faults lying between the Iron Mask Batholith and a larger mass of intrusive rocks to the southeast. It is evident that repeated mobilization of minerals must have taken place in an area of potential reservoir structures that could contain an ore-body. Ground to the south and east of holdings of

Pinnacle Mines Ltd. covers some of the favorable ground and according to current claim maps appears to be open. It should be staked if possible. An initial program of percussion drilling to cost about \$20,000.00 should then be undertaken to obtain information on which to base a major program of diamond drilling to greater depth.

PROPERTY

The property consisted of 62 contiguous mineral claims held by right of location. These were as follows :-

<u>Claims</u>	<u>Record Numbers</u>
A ₁ to A ₄ incl.	47777 - 47780
5A to 8A incl.	56758 - 56761
A ₉ to A ₁₂ incl.	47785 - 47788
A ₁₃ to A ₁₆ incl.	48071 - 48074
C ₁ to C ₃ incl.	47789 - 47791
C ₄ to C ₁₈ incl.	47955 - 47969
CLE ₁ to CLE ₁₀ incl.	47792 - 47801
PIN ₁ to PIN ₂ Fractions	71608 - 71609
PIN ₃ and PIN ₄	71610 - 71611
PIN ₅ and PIN ₆ Fractions	71612 - 71613

<u>Claims</u>	<u>Record Numbers</u>
PIN ₇ Fraction	71619
PIN ₈ to PIN ₁₂ incl.	71614 - 71618
ART ₁ to ART ₆ Fractions	81298 - 81303

It appears however that only the 24 claims listed below are presently in good standing with expiry dates as shown:

<u>Claims</u>	<u>Record Numbers</u>	<u>Expiry Dates</u>
5A to 8A	56758 - 56761	June 13/72 ✓
ART ₁ to ART ₆ Frs.	81298 - 81303	June 26/72 ✓
* PIN ₁ to PIN ₁₂	71608 - 71619	Sept. 16/72 ✓
A ₂ and A ₉	47778 and 47785	Nov. 19/72 ✓

* The PIN claims are all shown as fractions on the claims map but PIN₃, PIN₄ and PIN₈ to PIN₁₂ are apparently recorded as full sized claims.

It is understood also that Pinnacle Mines Ltd. obtained and still retains the subsurface rights to all minerals other than gold and silver on district lot 585 Crown Granted May 12, 1890. The boundaries of this lot approximate those boundaries of a block of claims comprising C₁, C₄, C₅ and A₁ to A₆. Thus Pinnacle Mines Ltd. still retains the base metal rights to ground formerly largely covered by the following claims although they have been allowed

to lapse. *///*
 ///

<u>Claim</u>	<u>Record Number</u>
A ₁	47777 ✓
A ₃	47779 ✓
A ₄	47780 ✓
C ₁	47789 ✓
C ₄	47791 ✓
C ₅	47955 ✓

This gives it a fairly solid block of ground covering the area of the Joker Adit and Grey Mask Shaft where copper mineralization of interest is evident. See Map 5. }

It also retains a number of fractions of unknown acreage scattered through the original claim block also indicated on Map 5 on which it has the rights to all minerals. }

Boundaries cannot be defined accurately without a survey on the ground.

REGIONAL GEOLOGY

The body of intrusive rocks known as the Iron Mask Batholith has long been credited for most of the mineral occurrences in the area as they are mostly found along the margins of it or in a few cases close to its central axis.

There is a great complexity of rock types within the batholith and around its margins. The intrusive rocks are of six major types. The two main divisions constituting the greater part of the batholith consist of 1. fine grained rocks varying in composition from diorite to monzonite and classed as microdiorites and micromonzonites and 2. coarse grained rock varying in composition from that of acidic monzonites and syenites to basic pyroxenites. At intervals around the margins are to be found intrusive masses of picrite basalt and serpentine considered to be older than the main mass. Younger

intrusives are the porphyritic equivalents of some of the older intrusives and are known as the Cherry Creek and Sugarloaf Intrusives. These are considered responsible for much of the mineralization. Peridotite has also been found in the vicinity of some mineral deposits.

Marginal rocks consist of the mainly sedimentary Cache Creek rocks of Carboniferous age, the sedimentary and volcanic Nicola rocks of Triassic age both of which would be intruded rocks and could be mineralized, particularly the latter and the younger rocks of the Kamloops group of Miocene age which consists of sedimentary and volcanic rocks and would not be mineralized.

Alteration (Saussuritization) is usually pronounced in the mineralized areas. The principal minerals found have been magnetite, hematite, pyrite in addition to the copper minerals consisting of chalcopyrite, boronite and lesser amounts of chalcocite, cuprite, azurite and malachite. Native copper has recently assumed a position of major importance as a result of the unique occurrence of this metal, apparently of primary origin recently discovered on the property of Afton Mines at the northwestern tip of the Batholith. A somewhat similar situation could exist at the southern tip of the batholith which will be discussed in the following section. These minerals are not necessarily always found together. For example magnetite may or may not accompany chalcopyrite so that a high magnetometer reading or a low reading could be indicative of copper mineralization.

GEOLOGY OF PINNACLE MINES PROPERTY

The claims belonging to Pinnacle Mines Ltd. straddle the southern end of the Iron Mask Batholith as it was mapped by Carr in Figure 3 of the 1956 Minister of Mines Report (MMR) but do not extend to the western margin as modified in figure 13 of the 1967 MMR except at the very south end.

Copper mineralization within the claim group has been found associated with a band or bands of the Cherry Creek Intrusives lying along the long axis of the batholith, and again at the contact of the older basic picrite basalt intrusives with the main mass of coarse textured rocks of intermediate to acid composition. These would seem to be discrete occurrences despite contentions to the effect that they are related.

By referring to figure 13 of the 1967 MMR it is seen that the oldest picrite basalt intrusives and the youngest Cherry Creek intrusives approach each other towards the southern tip of the batholith and probably intersect. At the northern end of the batholith these rocks are again approaching each other in the general vicinity of the Afton Mines and in addition the Sugar loaf intrusions coalesce with them. These latter have only been found along the southwestern margin of the batholith and so could be present under overburden at the southern tip.

RECOMMENDATIONS FOR FURTHER WORK

On the basis of a theory that concentrations of mineralization are the end product of repeated mobilizations and differentiations of both rock and metallic minerals, the place to look for a commercial concentration of mineral is where there is a complexity of intrusive rock types with obvious hydrothermal alterations and favorable structures such as contacts and intersecting fault zones as shown at the south point of the batholith on map 13 of the 1967 MMR. The subsurface contact between the intrusive rocks and the Nicola-Cache Creek Rocks could be particularly interesting.

In their report of August 6, 1969 attached hereto, Pasioka and Prendergast recommended on page 11 that further exploration work should be done in the area lying between the Joker Adit and the Grey Mask shaft.

Two holes P₈ and P₉ the last of a series of holes drilled in the spring of 1969 showed mineralization of interest as indicated on page 9 of the above report. As far as can be determined from information provided no further work has been done in that area.

The writer would recommend that this mineralization, particularly that found in P₉, should be further checked by low cost percussion drilling. The location of holes should be determined in the field, having in mind the importance of cross structures thought to occur here, particularly in the

vicinity of the younger intrusives, ie Cherry Creek Intrusives which are mapped as occurring in this area. The work should be supervised by an engineer familiar with the previous work if possible.

It is believed that geochemistry and geophysics so far done on the property may not all be thoroughly reliable because of the apparent presence of glacial till in the deeper overburden of the valleys and because some of it was done under very adverse weather conditions. It is also believed that hot extractive methods would have been more reliable than the cold methods // used. At least hot extraction should have been used to check the cold methods in part of the area. !!!

It is therefore recommended that a preliminary program of percussion drilling be done in the areas of potential interest indicated by Pasioka and Prendergast. In addition to seeking copper mineralization this drilling would provide information on the nature of the overburden and the upper portion of the bedrock. A study of this information and whatever information of value that may be available from past work, having due regard to the presence of alteration and its relation to mineralization and noting the effects of glacial till on the geochemistry, should provide some useful guides for the locating of diamond drill holes for deep penetration of favorable structures in a later stage of exploration. The proposed expenditures are tabulated below.

PROPOSED EXPENDITURES

Stage I

- allow for 5000 feet of percussion drilling in holes of varying depth to penetrate bedrock up to about 100 feet at \$4.00 per foot overall including professional services. \$ 20,000.00

Stage II

- 1. allow for 6000 feet of B.Q. Wireline drilling at \$12.00 per foot average overall. \$ 72,000.00
 - 2. Professional services involved in supervision, core logging, etc. 5,000.00
 - 3. Sampling, Assaying, allow 4,000.00
 - 4. Communications and Travel allow 3,000.00
 - 5. Auxiliary bulldozing allow 3,000.00
- \$ 87,000.00
- Contingencies @ 15% 13,050.00
- Total \$ 100,050.00
- SAY \$ 100,000.00

The location of drill holes in both stages should follow thorough study of all available information.

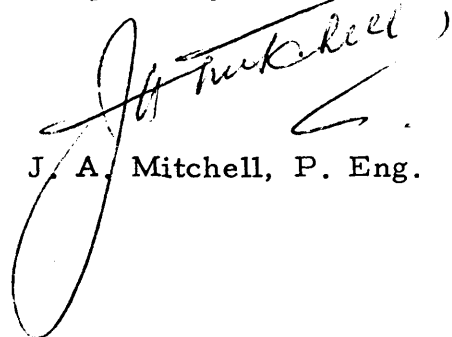
PREVIOUS EXPENDITURES

Financial statements dated December 31, 1968; April 30, 1969 and April 30, 1970 have been reviewed by the writer. These show a final breakdown of expenditures on the subject property in British Columbia by Pinnacle Mines Ltd. totalling \$149,161.29 to be as follows:

Diamond drilling	\$ 80,380.30
Geophysical surveys	50,126.64
Trenching	3,544.00
Line cutting	1,265.00
Engineering fees & expenses	7,348.68
Travel	2,798.94
General Field expenses	<u>3,697.73</u>
	<u>\$ 149,161.29</u>

There have been no expenditures on the subject property since that date but expenditures have been made elsewhere which have produced a Working Capital deficiency.

Respectfully submitted,



J. A. Mitchell, P. Eng.

Vancouver, B. C.
February 1st, 1972.
Report Amended
February 15th, 1972.

REFERENCES SEEN

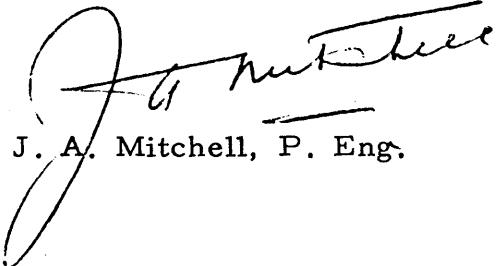
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2. J. M. Carr, Minister of Mines Report, 1956, Deposits Associated with the eastern part of the Iron Mask Batholith near Kamloops.
3. V. A. G. Preto, Minister of Mines Report 1967, Geology of the Eastern part of Iron Mask Batholith.
4. J. B. Prendergast, M.A. P. Eng., Velocity Surveys Ltd., Report on the Property of Pinnacle Mines Ltd. (N.P.L.), October 29, 1968.
5. G. D. Delane, B. Sc. and W. R. Bacon PhD., P. Eng., Report on the Property of Pinnacle Mines Ltd., February 20, 1969.
6. C. T. Pasioka, B. Sc. and J. B. Prendergast, M.A., P. Eng., Summary Report on Property of Pinnacle Mines Ltd. (N.P.L.), July 10, 1969.
7. Financial Statements of Pinnacle Mines Ltd. (N.P.L.) to April 30th, 1970.

CERTIFICATION

I, J. A. Mitchell, of 2991 Mathers Avenue, West Vancouver, B. C.
HEREBY CERTIFY:

1. THAT I am a mining engineer, having graduated with the degree of Bachelor of Applied Science from the University of British Columbia in 1932.
2. THAT I have practised my profession continuously since graduation.
3. THAT I am a member of the Association of Professional Engineers of British Columbia.
4. THAT this report is based solely on a review of various reports dealing with the property of Pinnacle Mines Ltd. and the area of the Iron Mask Batholith.
5. THAT I have no interest either directly or indirectly in the properties or securities of Pinnacle Mines Ltd. (N.P.L.), nor do I intend to receive any.

Respectfully submitted,


J. A. Mitchell, P. Eng.

Vancouver, B. C.
February 1st, 1972.