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PRELIMINARY REPORT

ON

KELLY CREEK PROPERTY

SIMILKAMEEN MINING DIVISION

BRITISH COLUMBIA

by

A.G. Hodgson P. Eng.

2 May, 1967

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Figure 1 - Claim Plan & Key .. Back Pocket

Figure 2 - "Showing" Area..... "

(1)

SUMMARY

The Kelly Creek property near Princeton, B.C. has several zones of iron sulfide and copper mineralization localized in the marginal area of a belt of Coast Range - type intrusives. A work program during 1966 was terminated at year's end. The pages following review this program and its results, and offer suggestions for a reappraisal of the property consequent on certain new investigations.

This report is based entirely on the work of, and communications from, others; and is subject to revision when examination is possible. In the meantime its contents are intended for private use only.

May 2, 1967

PRELIMINARY REPORT

KELLY CREEK PROPERTY  
SIMILKAMEEN M.D., B.C.

by

A.G. Hodgson P. Eng.

INTRODUCTION

The Kelly Creek property, some 35 miles west by road from Princeton, B.C., covers an area with widespread copper and local nickel values in the border zone of Coast Intrusions.

Bethex Explorations Ltd. (N.P.L.) optioned the property and conducted an exploration program during the 1966 field season. Results were not considered encouraging; work was discontinued and the option was dropped.

The writer, at the request of Mr. R. Gilroy for Northco Explorations Ltd. (N.P.L.), reviewed the results of the Bethex work to determine if a broader or expanded scale of exploration might be justified.

This report presents a brief description of the property followed by a synopsis of the Bethex operation, and concludes with suggestions for additional investigations that are thought will aid in a re-evaluation of the property.

For the most part data here are abstracted from the records supplied by Mr. Gilroy (from Bethex). It must be emphasized that the writer has not been on the ground and that any subjective material herein is open to revision or rejection when snow conditions permit a personal examination. Brevity is employed in the following paragraphs partly to avoid repeating what has already been adequately covered by the Bethex records, and partly because of the lack of first-hand information.

THE PROPERTY

Locational:

Kelly Creek, in the Similkameen Mining Division, B.C., may be reached by road from Princeton, about 35 miles to the east (Fig. 1). The western portion of the road was built by bulldozer in 1966 and is suitable only for summer travel.

The elevation ranges from 3500 to 5000 feet above sea level and a snow-pack reaching 8 feet or more is normal by late winter. Coquihalla Mountain to the north is a prominent topographic feature of the immediate area.

Drainage is provided by Kelly Creek, a southeasterly-flowing tributary of the Tulameen River.

The Claims:

As presently constituted the property is comprised of 76 claims and 3 fractions (Fig. 1) as follows:

<u>No. Claims</u>	<u>Claim Names</u>	<u>Reg. Nos.</u>	<u>Record Date</u>
2	DAVID & DAVID #1	11746 & 11747	Sept. 3, 1963
2	DAVID 2 & DAVID 3	11827 & 11828	Oct. 23, 1963
34	PR #1 - PR #34	12556 - 12599	Sept. 13, 1965
2	PR #35 & PR #36	12600 & 12601	Sept. 13, 1965
2	PR #37 & PR #38	12745 & 12746	Nov. 9, 1965
8	PR #39 - PR #46	18767 - 18774	Sept. 9, 1966
4	PR #47 - PR #50	12755 - 12758	Nov. 9, 1965
16	SKIDOO #1 - #16	14451 - 14466	Feb. 15, 1966
6	SKIDOO #17 - #22	15787 - 15792	March 4, 1966
2	PR #1(Fr) & #2(Fr)	18680 & 18681	Aug. 26, 1966
1	SKIDOO #1(Fr)	18682	Aug. 26, 1966

Three year's assessment work was filed in 1966 on 40 key claims (including the mineralized area) and one year on the remainder.

History of Property:

The 4 nucleus claims (DAVIDs) were staked by Messrs. K. Armstrong, W. Armstrong and L. Ashley to cover a copper discovery made in 1963 which, in its early development, was restricted to a mineralized area about 40 feet square.

An agreement with Bethex in late 1965 involved staking an additional 75 claims and fractions (Fig. 1).

During 1966 in excess of \$60,000.00 was spent by Bethex exploring the original showing and its environs. The deal was terminated following this work and the entire claim group reverted to the vendors.

Early in 1966 Mr. Gilroy, representing Northco Explorations Ltd., arranged for a re-examination of the property and at the time of writing (last week in April) a bull-dozer is at work ploughing the road and removing snow from the mineralized area.

General Geology:

The regional geology is shown on Map 737A (with marginal notes) of the Geological Survey of Canada and will not be discussed here.

Reference to Fig. 2 shows the geology of the mineralized belt as mapped by Bethex geologists and the following remarks are based on their work.

Coast Range - type intrusives are enclosed on the south and west by clastic sedimentary rocks of the Pasayton Group. The youngest rocks are a series of "rhyolite" bodies probably related to Tertiary volcanics.

Three major faults are postulated that mark the contact between intrusive and sedimentary rocks(Fig. 2).

The Coast Range - type intrusives (probably related to the so-called Eagle Granodiorite) have been, within the map area, divided into three phases on the basis of differences in texture and composition as follows:

- (1) basic phase (probably a marginal variant)
- (2) fine-grained phase
- (3) medium to coarse-grained phase

The three phases grade from one to the other with no distinct contact discernible.

A large part of the structural elements within the map area appear to conform to a northwest to north-northwest pattern, and hence with the regional "grain" of the country. This applies to some faults and shears, attitudes in sediments, long axes of "rhyolite" bodies, disposition of elongation of diorite phases, and major axes of mineralized zones.

Principal mineralized zones are confined to the Coast Range - type intrusives (the term "diorite" will be employed) and show no particular preference for any one of the three phases.

Mineralized Zones:

The three main areas of mineralization are shown on Fig. 2. The Main Showing is a part of the Bethex map area and contains the original discovery zone. The Northwest Zone and East Zone were disclosed during the 1966 program.

Mineralization consists mainly of pyrite with lesser amounts of chalcopyrite and pyrrhotite. The Main Showing also contains significant nickel values and the northwest Zone exhibits scattered zinc mineralization (sphalerite) associated with calcite stringers. A very low silver content is contained in each zone.

The sulfides occur both disseminated and filling fractures; also in quartz stringers and veinlets. Shearing may or may not be present; if so it is accompanied by chloritization.

The Main Showing embraces an area 800 feet long and 200 feet wide at its northwest end a few feet wide at its other extremity. The Northwest zone, 3000 feet north, is 1200 feet long and 3 to 5 hundred feet wide; the Eastern Zone is 1500 feet northeast and consists of a shear (probably narrow) 1500 feet long trending about N60°W.

In each of the above zones pyrite is by far the most predominant sulfide, so far as can be observed, and in places probably constitutes up to 5% of the rock mass. It is not known to what degree the limits of the mineralization spread have been defined.

WORK COMPLETED & RESULTSScope of Work:

Work carried out by Bethex during 1966 included the following:

- (1) Road construction -  $4\frac{1}{2}$  miles
- (2) Geological mapping
- (3) Bulldozer trenching - 35 trenches
- (4) Surface sampling - 122 samples on Main Showing
- (5) Induced Potential survey on  $11\frac{1}{2}$  miles of line
- (6) Diamond drilling - 2832 feet in 5 drill-holes

Without purporting to analyze or record the results of this work in their entirety the following is a brief synopsis of results.

Surface Sampling:

Sampling was focused on the Main Showing, where the best results were returned from an area about 100 feet (north end) by 30 feet (south end) and 60 feet wide, near its north end. Samples from this area may be reduced to the following results:

<u>No. of Sas.</u>	<u>Sa. Distance</u>	<u>oz. Ag</u>	<u>%Cu</u>	<u>%Ni</u>
9	96.0'	0.07	0.20	0.31
8	73.0'	0.15	0.20	0.15
6	60.0'	0.16	0.17	0.20
3	30.0'	0.16	0.25	TR

Elsewhere in the zone scattered copper values were returned ranging up to 0.48%. There is no record of nickel results.

No assays are available from the Northwest and East Zones, and presumably no surface sampling was done in these areas.

Geophysical Survey:

The Induced Potential survey covered approximately  $11\frac{1}{2}$  line miles; employed the variable frequency method (McPhar Type instrument). Results were evaluated on the basis of metal factor and resistivity; five anomalous zones were indicated of which three are shown on Fig. 2 (as "A", "B" and "C"). It will be noted that A and B anomalies are roughly co-extensive with the Northwest and Main zones respectively and C lies immediately south of the East Zone.

Diamond Drilling:

Drill - holes 1, 2 and three were drilled in the same plane to test anomaly A and holes 4 and 5 are parallel borings under anomaly B.

Each hole in anomaly A intersected abundant pyrite along with minor chalcopyrite and pyrrhotite and local sphalerite. B anomaly returned a lower content of sulfides. Each hole showed quite widespread chloritization along with local development of epidote and pink feldspar.

The best intersections returned from the drill-holes are tabulated below:

<u>D.H. No.</u>	<u>Footage</u>	<u>Core Length</u>	<u>% Cu</u>	
1	515.0 -575.0	60.0'	0.12	Northeast Zone
2	170.0-190.0	20.0'	0.56	
3	293.0-323.0	30.0'	0.25	
4	264.0-324.0	60.0'	0.06	Main Showing
5	325.0-355.0	30.0'	0.09	

In addition to the above results numerous shorter lengths with low copper values were encountered throughout each hole. Assays for nickel were all trace.

#### DISCUSSION OF RESULTS

The diamond drilling summarized above was inferred to install pyrite as the principal conductor accountable for the I.P. response (A and B anomalies) and this conclusion, along with the lack of nickel values in the B anomaly holes, conduced, in large part, to the decision to forego further work on the property. The writer tends to agree, on the basis of the information obtained as far as it goes; but feels that such information lacks sufficient scope and comprehensiveness to be conclusive.

Accordingly, the following ideas are offered for further consideration and/or investigation in the belief that they will prove useful in a re-evaluation of the property.

##### (1) Nickel Possibilities:

No satisfactory explanation is apparent for the significant nickel values on surface (Main Showing) and their absence in holes 4 and 5. The former hole was directed beneath the down-dip projection of the nickeliferous zone and failed to encounter more than a trace nickel. Three explanations - among others possible - are conceivable:

- (a) mineralization "bottoms out" at a shallow depth
- (2) mis-interpretation of structure
- (3) residual concentration from low-tenor primary source

Field examination should endeavour to relate the nickel to a specific structure or rock-type, and to establish with as much certainty as possible its attitude in space to determine whether, in fact, drilling did ensure an adequate test for nickel content.

Residual concentration or surface enrichment could be proven or otherwise by trenching below the weathered surface and re-sampling fresh material.

Along with these investigations the presence of the platinum group should be tested for (Kelly Creek is tributary to the Tulameen River; recognized for its placer deposits of platinum).



(2) Interpretation of Geophysics:

The A anomaly covers an area over 1000 feet square and is open - i.e. not delimited - on the west. It is transcended by an indicated larger area of mineralization (see Fig. 2). Whether or not a single tier of holes provides a definitive test of such a zone is debatable. The zony character and variable sulfide association of such deposits is well known, and the substitution of another metallic component, say chalcopyrite, for a portion of the pyrite (to which the relatively high metal factor is imputed) could produce a like anomalous condition with enhanced economic potential. Such could conceivably be the case elsewhere in the zone where it has not been tested.

The C anomaly covers a large area immediately south of the East Zone, and is interpreted as being attributable to thick overburden. It was not drilled and there is no record of its being explored by bulldozing on the surface.

Concluding this discussion, it should be noted that the geophysical report by Suzuki and Yokoyama was available for study, but not the related plans and profiles on which their conclusions were based. An effort should be made to obtain this information for future study.

(3) Work Coverage:

The records reviewed indicate that less than 20% of the property was covered by mapping and geophysical survey; hence cessation of work was predicated on results from advanced work on a portion of the property only. It is not known to what extent the remaining ground was prospected and explored; it may be that much was eliminated on geological or topographic nature.

CONCLUDING STATEMENT

Useful preliminary investigations for a re-evaluation of the property are obvious above but are enumerated here:

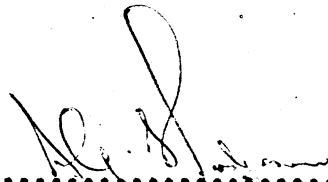
- (1) Investigate control of nickel, check platinum group metals in Main Showing.
- (2) Open A and C anomaly areas by bulldozer if feasible and follow by sampling if indicated.
- (3) Evaluate unexplored portion of property.
- (4) Obtain detailed geophysical plans and profiles for study.

As of this writing a bulldozer is working at snow removal from roads and trenches to permit an early examination of the property. A useful purpose would be served when this work is completed by employing the bulldozer to extend present trenches where feasible, to explore the A and C anomaly areas, and to open up a new discovery on DAVID 3 made last fall (reported by Mr. Gilroy to contain iron sulfides and chalcopyrite in chloritized diorite).

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The bull-dozing and property examination - which should precede any decision to undertake major work - should be well in hand in 6 weeks or less (depending on weather); and the results, along with those already provided by Bethex, will furnish data on which can be based a verdict whether or not to proceed to an expanded program of exploration.

A budget up to \$10,000.00 can be justifiably applied to this work, and should be ample to cover the cost of field operations and assembling and analyzing the technical data.



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A.G. Hodgson P. Eng.

Vancouver B.C.

2 May, 1967

