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geologicalbranch 11,125 part 2 of 2
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## SUMMARY

During the period May 1 - October 22, 1982 Preussag Canada Limited conducted a mapping, geochemical, geophysical and drilling program on Cominco's BET $1-5$ mineral claims in the Birk Creek area, 25 km northeast of Barriere, B.C. The purpose of the program was to test for volcanogenic massive sulphides within acid volcanics of the Eagle Bay Formation. No significant economic mineralization was found.

## INTRODUCTION

## a. Location and Access

The BET claim group, comprised of the BETT 1, 2, 3 and 5 claims, is githin NTS 82M/5W at approximately $51^{\circ} 20^{\prime} \mathrm{N}$ latitude and $119^{\circ} 55^{\prime} \mathrm{W}$ latitude. The claims are accessible by road, 63 km north of Kamloops on Highway 5 to the town of Barriere and then 28 km east on paved and gravel roads along the North Barriere River. The claims are located between Birk Creek and Harper Creek. Logging roads and trails provide access to much of the claim group (see Fig. 1).

Elevations range from 650-1500m across gentle to moderate slopes with major drainages providing locally steep relief. Several stands of douglas fir and cedar on the property have been commercially logged. Birch, hemlock and spruce are also present. Temperate climatic conditions prevail with moderate to heavy snowfalls from December to March and seasonal rainfall throughout the remainder of the year.

## b. History

Most, if not all showings in the area were discovered by prospectors before 1930 and were worked by hand tunnelling and short adits. There is no record of any ore shipments or production from the small showings. In 1951-52 Kennco Exploration did 16 line miles of ground EM in the Birk Creek area. Seven conductive zones were outlined and tested by seven drill holes. Drilling intersected a thick sequence of sparsely mineralized quartz sericite schists with interbedded graphitic argillites (phyllites) and carbonate.


FIG. 1 LOCATION OF THE BET CLAIM GROUP
NTS $82 \mathrm{M} / 5 \mathrm{~W}$

In 1971, Ducanex Resources collected 750 soil samples north of Birk Creek. One large coincident Cu-Zn anomaly ( 2000 ppm Cu, 6500 ppm 2 n ) and several broad anomalies were outlined to the east of the present BET claim group. Ten line miles of IP were run. Seven drill holes ( 2344 ft total) tested coincident geochem-geophysical anomalies but failed to intersect economic mineralization.

Since 1976 Cominco has been active in the Birk creek area. In 1976 they conducted a soil and rock geochem program. No significant geochem anomalies were delineated, the two best grab samples (rock) assayed $4.2 \% \mathrm{Zn}, 2 \% \mathrm{~Pb}, .83 \mathrm{oz} / \mathrm{t} \mathrm{Ag}$; and $3.1 \% \mathrm{Cu}, .4 \mathrm{oz} / \mathrm{t} \mathrm{Ag}$. In 1978 Cominco ran 8.2 line kilometers of VLF-EM and IP surveys. A broad zone of moderately anomalous chargeability response was outlined and indicated the approximate location of a sulphide bearing horizon. A strong VLF conductor was also outlined. These anomalies were tested with 6 drill holes (deepest 200 m , avg. 120 m ). These holes failed to locate significant base metal mineralization, the best assay was .3 . $\mathrm{Cu}, 1.4 \% \mathrm{zn}, .4 \mathrm{oz} / \mathrm{t} \mathrm{Ag}$ over 1 m .
c. Present Program

Preussag Canada Limited was the operator for the 1982 program. F. Daley and K. Baldry of P.C.L. supervised the work intermittently between May 1 and October 20, 1982, with various stages being contracted to Hi-Tec Management, G. White Geophysical Services and Frontier Drilling.

The 1982 program included mapping 7.4 km of new logging roads, 16.8 km of grid construction, 12.5 line km of Max-Min EM and 1 B.Q. core diamond drill hole totalling 120 m . The purpose of the program was to evaluate previously known volcanogenic massive sulphide showings within acidic metavolcanics of the Fagle Bay Formation.

RESULTS AND INTERPRETATION
a. Geology

The BET claim group is underlain by metavolcanics and metasediments of the Mississippian Eagle Bay Formation. The metavolcanics are dominated by a thick section of rhyolite tuffs,
now preserved as buff to yellow weathering quartz eye sericite schists in the Birk Creek area. The acid volcanics are overlain to the south by black argillite and interfinger with and are underlain to the north by dacitic and andesitic tuffs (quartz sericite and quartz chlorite schists) and minor sediments (graphitic black argillites and limestone). See Fig. 2. The setting is interpreted as being on the flanks of an acid volcanic pile with a possible proximal setting to the south of Birk creek.

Regionally, the stratigraphy has a fominant northwest trending metamorphic foliation with a $15^{\circ}-30^{\circ}$ southwest dip. Compositional layering is parallel to sub-parallel with the strong foliation. Locally the stratigraphy may strike almost east-west and is accompanied by a steepening dip. No large scale folding is evident on the property. A locally developed north trending steeply dipping cleavage indicates an additional phase of deformation to the formation of the main bedding plane cleavage.

Economic interest is centered on the major quartz eye sericite schist horizon in the Birk Creek area. Quartz eyes vary from $2-15 \%$ and up to 7 mm in size. The matrix is mainly quartz, feldspar and sericite with relict feldspar phenocrysts altered to carbonate. Overall pyrite content ranges from $2-10 \%$ and occurs as disseminations or fine to medium grained stringers parallel to foliation.

There are several massive sulphide showings within the acid metavolcanics, the CC, Rainbow, Lynx and Copper Cliff. Mineralization consists of lenses of massive medium grained pyrite with minor chalcopyrite, sphalerite and galena. The lenses range in thickness from 5 cm to $2-3 \mathrm{~m}$. Generally, base metal values are less than $1 \% \mathrm{Cu}, \mathrm{Pb}$ or Zn .

Several massive pyrite boulders were found in float south of Birk Creek along the strike of the quartz sericite schist - argillite contact (see Fig. 2). Again, base metal values were very low (see Appendix I).

There is evidence of an erosional hiatus between the quartz sericite schist and overlying argillites. Although outcrop is scarce, several pieces of epiclastic material were found along the contact. Clasts of chert, quartz, feldspar and sericite up to 1 cm in diameter occur in a chloritic argillaceous matrix.
b. Max-Min II EM Survey

In August, Hi-Tec Management of Vancouver established approximately 16.8 line km of grid on the BET claims. A Max-Min II EM survey
contracted by G. White was completed by the end of August on 12.5 line km of the grid. E. Trent Pezzot, geophysicist, supervised the program.

The survey consisted of approximately 12.5 line kilometers with readings taken at 25 meter station intervals. The equipment was used in the maximum coupling mode with a transmitterreceiver separation of 150 meters. Both the 444 hz and 1777 hz frequencies were monitored and recorded. The survey lines were secant chained and the station to station slope values made available to the geophysical survey crew to insure accurate tilt level control across the grids. All field data was corrected for the appropriate coil spacing variations before being presented on the accompanying maps, Figures 3 and 4.

Six conductive trends labelled 1 through 6 are delineated on the accompanying maps, see Figures 3 and 4 .

Conductor \#l extends from line $41+00 \mathrm{~N}$ to line $36+00 \mathrm{~N}$ and is considered open to the south. Type curve analysis is difficult because the eastern flank of the anomaly was not completely surveyed however the zone appears to dip approximately $30^{\circ}$ to grid east. Conductive overburden is present in the area, however it appears to be relatively thin since the major conductor is interpreted as being less than 15 meters deep on lines $38+50 \mathrm{~N}$ and $36+00 \mathrm{~N}$. Drill hole D-4, located immediately south of line $41+00 \mathrm{~N}$ and directly on the conductive trend, intersected a fault zone with chloritic schists at a depth of some 90 feet. If this feature is the cause of the anomalous response it can be expected to come near the surface to the south and also exhibit increased conductivity and apparent width in this direction.

Conductor \#2 appears to be an offshoot of Conductor \#1. It is the response from a relatively poor conductor and observed only in the higher frequency data. No explanation for this weak response is given at this time.

Conductor \#3 occurs on the west end of line $46+00 \mathrm{~N}$. The anomaly appears to be more like the reflection of a geological contact than of a dyke-like conductive unit.

Conductor \#4 occurs on the west ends of lines $41+00 \mathrm{~N}$ through $36+00 \mathrm{~N}$ with a localized, strong response occuring on line $38+50 \mathrm{~N}$. A number of drill holes have been located around the strong, response noted on line $38+50 \mathrm{~N}$ and a review of the drill core or logs might explain the causitive feature. Conductors \#3 and \#4 are quite possibly reflecting the same geological contact.

Conductor \#5 extends from line $34+00 \mathrm{~N}$ to $30+00 \mathrm{~N}$ and is considered closed at both ends. The causitive feature is a zone approximately 125 meters wide which dips some $30^{\circ}$ to grid west and comes to within 50 meters of the surface on line $34+00 \mathrm{~N}$.

Conductor \#6 extends from line $36+00 \mathrm{~N}$ to $42+00 \mathrm{~N}$ and is considered open to the north. Conductor \#6 may be a fault displaced continuation of Conductor \#5 however it appears to be deeper and of poorer conductivity. The zone broadens to the north and the edges become quite indistinct by line $42+00 \mathrm{~N}$.

Summary

Four weak anomalies were recorded on the BET claim group, north of Birk Creek, the best of which corresponds to a newly exposed conductive graphitic, argillaceous shear zone. The other trends showed no geochemical response from previous surveys. South of Birk Creek, 2 weak sub-parallel anomalous trends were recorded along the upper quartz sericite schist-argillite contact.
c. Geochemical Survey

Ninety-two soil samples were collected across the upper quartz sericite schist-argillite contact south of Birk Creek where massive pyrite float had been found for 2 km along strike, see Figure 2.

Samples were collected from the 'B' soil horizon wherever possible and stored in standard Kraft paper sample bags. All samples were analyzed for $\mathrm{Cu}, \mathrm{Pb}, \mathrm{Zn}$ and Ag by Chemex Labs of Vancouver. Results are plotted in Figure 5.

No anomalous trends were delineated as all samples were within background levels.

## d. Drilling

In October, Frontier Drilling Limited of Winfield, B.C. was contracted to drill one hole of 120 m on the BET 1 mineral claim. The vertical hole was collared with respect to Cominco's 1978 geophysical grid and is located at L. $7+25 \mathrm{~W}, 3+50 \mathrm{~N}$. See Figure 2. The purpose of the hole was to test for any down dip extension of a weakly mineralized, heavily chloritized zone intersected in DDH

BET 6. The hole cut a monotonous sequence of dacitic feldspar crystal tuffs and dacites. Very minor sphalerite and galena was noted in l-3mm stringers sub-parallel to foliation but nothing of economic grade or thickness, see Appendix II. The core is stored at the drill site.

## APPENDIX I



## APPENDIX II

Soil Geochemistry Results, Bet Mineral Claims

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## APPENDIX III

Drill Logs DDH BT82-1

## DIAMOND DRILL RECORD

PROPERTY
BET 1
HOLE No. BT82-1

| DIP TEST |  |  |
| :---: | :---: | :---: |
|  | Angle |  |
| Footoge | Reading | Corrected |
|  | $80^{0}$ |  |
| 108.5 |  |  |
|  |  |  |
|  |  |  |
|  |  |  |


| DEPTH (m) | DESCRIPTION | SAMPLE No. | WIDTH OF SAMPLE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0-6.5 | Overborden |  |  |  |  |  |  |
| 6.5-8.9 | Andesitic feldspar crystal tuff. Medium greyish | h |  |  |  |  |  |
|  | green with white mottling from. $5 \mathrm{~mm}-1.5 \mathrm{~mm}$ |  |  |  |  |  |  |
|  | feldspar crystals. Fine grained andesitic (now |  | - |  |  |  |  |
|  | chloritic and sericitic) matrix. |  |  |  |  |  |  |
|  | Angle of foliation to core axis $90^{\circ}$. |  |  |  |  |  |  |
|  | Minor greyish quartz grains, but not well |  |  |  |  |  |  |
|  | developed 'quartz eye' texture. |  |  |  |  |  |  |
|  |  |  | , |  |  |  |  |
| 8.9-33.5 | Andesitic to dacitic quartz eye crystal tuff. |  |  |  |  |  |  |
|  | (Now silvery quartz eye sericite schist). |  |  |  |  |  |  |
|  | Various shades of green and grey reflect varyi | ng |  |  |  |  |  |
|  | chlorite-sericite components. Distinguishing |  |  |  |  |  |  |
|  | feature from above tuff is presence of $3-7 \%$ |  |  |  |  |  |  |
|  | quartz eyes from $<1-3 \mathrm{~mm}$ diameter. |  |  |  |  |  |  |
|  | Sericite gouge at $24.5-24.7 \mathrm{~m}$. Broken core |  |  |  |  |  |  |
|  | $\text { from } 25,6-25,9 \mathrm{~m} \text {. }$ |  | , |  |  |  |  |
|  | Foliation to core axis 80-90 ${ }^{\circ}$. |  |  |  |  |  |  |
|  | At 9. $2 \mathrm{~m}, 2 \mathrm{~cm}$ band of medium grained pyrite |  |  |  |  |  |  |
|  | parallel to foliation. No economic sulphides. |  |  |  |  |  |  |


| DIP TEST |  |  |
| :--- | :--- | :--- |
|  |  |  |
| Footoge | Reading | Angle |
|  |  | Corrected |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |


| Hole No...--.................-Sheet No.....-2 ${ }^{\text {- }}$. | Lat........................-.................. | Total Depth.. |
| :---: | :---: | :---: |
| Section. | Dep.......................................... | Logged By..................................... |
| Date Begun................................................. | Bearing .-.................................. | Claim |
| Dote Finished............................................ | Elev. Collor................................ | Core Size .-.---...........-- |


| DEPTH | DESCRIPTION | SAMPLE No. | WIDTH OF SAMPLE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | From $9.6-9.66 \mathrm{~m}$, band of medium grained pyrit | , |  |  |  |  |  |
|  | no economic sulphides. |  |  |  |  |  |  |
|  | At $13.2 \mathrm{~m}, 8 \mathrm{~cm}$ barren white quartz vein. At |  |  |  |  |  |  |
|  | $15.7 \mathrm{~m}, 5 \mathrm{~cm}$ barren white quartz vein. Quartz |  |  |  |  |  |  |
|  | stringers $\rightarrow 1 \mathrm{~cm}$ at $13.7 \mathrm{~m}, 14.5 \mathrm{~m}, 23.3 \mathrm{~m}$ (with |  | - |  |  |  |  |
|  | minor fine grained galena along margins) and |  |  |  |  |  |  |
|  | 29 m . |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| $33.5-35.4$ | Same 'quartz eye' crystal tuff as above but |  |  |  |  |  |  |
|  | little or no chlorite, mainly sericite. |  |  |  |  |  |  |
|  | Noticeably more grey than before. |  |  |  |  |  |  |
|  | Minor pyrite stringers both parallel to and |  |  |  |  |  |  |
|  | cross-cutting foliation. | . |  |  |  |  |  |
|  | Foliation to core axis $85^{\circ}$. |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| 35.4-75 | Mainly greyish green andesitic 'quartz eye' |  |  |  |  |  |  |
|  | crystal tuff, same as above. Minor sections |  |  |  |  |  |  |
|  | of white mottled, feldspar crystal tuff with |  |  |  |  |  |  |
|  | only minor quartz eyes. Also minor sections of |  |  |  |  |  |  |
|  | grey, sericite $\gg$ chlorite matrix. No economic |  |  |  |  |  |  |
|  | sulphides. |  |  |  |  |  |  |

PROPERTY
BET 1
hole No. BT82-1


| DIP TEST |  |  |
| :---: | :---: | :---: |
|  | Angle |  |
| Footage | Reading | Corrected |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Date Finished
Elev. Collor. $\qquad$

| DEPTH | DESCRIPTION | SAMPLE No. | WIDTH OF SAMPLE |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Foliation to core axis $80-90^{\circ}$. Quartz eyes |  |  |  |  |  |  |
|  | vary from $1-7 \%$ and from $2-5 \mathrm{~mm}$ in size. 15 cm |  |  |  |  |  |  |
|  | barren quartz vein at 70 m . |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| 75-119 | Mainly andesitic to dacitic feldspar crystal |  | - |  |  |  |  |
|  | tuff. Noticeably greener, more chloritic than |  |  | . |  |  |  |
|  | $\overline{\text { upper }} 75 \mathrm{~m}$. Feldspar crystals vary from $1-10 \%$ |  |  |  |  |  |  |
|  | and from $1-3 \mathrm{~mm}$ in size; quartz eyes still |  |  |  |  |  |  |
|  | present, $1-3 \%$ but dominant feature is feldspar |  |  |  |  |  |  |
|  | 'mottling' compared to overlying tuff. |  |  |  |  |  |  |
|  | Gradational upper and lower contacts. |  |  |  |  |  |  |
|  | Foliation to core axis $80-90^{\circ}$. |  |  |  |  |  | , |
|  | Pyrite stringers with minor sphalerite, gale | na, |  |  |  |  |  |
|  | chalcopyrite(?) noted at $87.95 \mathrm{~m}, 97.31 \mathrm{~m}$, |  |  |  |  |  |  |
|  | $93.65 \mathrm{~m}, 99.3 \mathrm{~m}$ and 106.5 m . |  |  |  |  |  | , |
|  | Pyrite generally $<3 \%$. $3-5 \mathrm{~cm}$ bands of heavi | 1y |  |  |  |  |  |
|  | disseminated pyrite ( $15-30 \%$ ) at $108.9 \mathrm{~m}, 111.4 \mathrm{~m}$ | , |  |  |  |  |  |
|  | $11 \overline{4} .5 \mathrm{~m}$ and 115 m . |  |  |  |  |  |  |
|  | Only minor quartz veining. |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |




| DEPTH | description | SAMPLE No. | OF SAPTH ${ }_{\text {W }}$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 119-120.7 | Grey dacite tuff. Less feldspar, more siliceou | s |  |  |  |  |  |
|  | than overlying tuff. Gradational contact. |  |  |  |  |  |  |
|  | Minor pyrite stringers parallel to follation | . |  |  |  |  |  |
|  | Foliation to core axis $80-90^{\circ}$. |  |  |  |  |  |  |
|  | No economic sulphides. |  | - |  |  |  |  |
|  |  |  |  |  |  |  |  |
| 120.7 | End of hole. |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
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|  | $\cdots$ |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |

## APPENDIX IV

## ITEMIZED COST STATEMENT

1. Wages
F. Daley May l-Oct. 20, 198228 days @ $\$ 250 /$ day $\$ 7,000.00$
K. Baldry May 1-Oct. 20, 198228 days @ $\$ 125 /$ day $3,500.00$
2. Food

Groceries $\quad 205.94$
Meals
287.78
3. Field Supplies (flagging, bags, lumber, freight, core boxes, etc.)
4. Accommodation
$\begin{array}{ll}\text { Monte Carlo Motel, Barriere } & 887.22\end{array}$
5. Transportation (Vehicular)
$1,617.07$
6. Linecutting

Hi-Tec Management, Vancouver
16.8 line $\mathrm{km} @ \$ 203 / \mathrm{km}$

3,410.40
7. Geophysical Survey
G. White Geophysical Consulting Ltd., Vancouver
12.5 line km Max-Min II EM @ $\$ 387 / \mathrm{km}$

4,837.50
8. Drilling

Frontier Drilling, Winfield
120 m @ $\$ 59.26 / \mathrm{m}$
7,111.20
9. Assaying

Chemex Labs, Vancouver
92 soil samples for $\mathrm{Cu}, \mathrm{Pb}, \mathrm{Zn}, \mathrm{Ag} @ \$ 5.00 /$ sample 460.00
11 rock samples for $\mathrm{Cu}, \mathrm{Pb}, \mathrm{Zn}, \mathrm{Ag}, \mathrm{Au} @ \$ 27.25$ / sample
299.75
10. Report Preparation
F. Daley 2 days @ $\$ 250 /$ day 500.00

Drafting $\quad 123.00$
TOTAL

## APPENDIX

AUTHOR'S QUALIFICATIONS

I, Fred S. Daley, hereby declare that;
i. I obtained a B.Sc. degree in Geological Sciences from the University of British Columbia in 1975,
ii. I have been continuously employed in mineral exploration since that time,
iii. I have been employed as an Exploration Geologist with Preussag Canada Limited since January 1981,
iv. I supervised and personally participated in the surveys described in this report,
v. I am a member of the C.I.M.M. and the Cordilleran Section of the G.A.C.

## STATEMENT OF QUALIFICATIONS

NAME:
PEZZOT, E. Trent
PROFESSION:
EDUCATION:
Geophysicist - Geologist
University of British Columbia B.Sc. - Honors Geophysics and Geology

PROFESSIONAL ASSOCIATIONS:

EXPERIENCE:
Society of Exploration Geophysicists
Three years undergraduate work in geology - Geological Survey of Canada, consultants.

Three years Petroleum Geophysicist, Senior Grade, Amoco Canada Petroleum Co. Ltd.

Two years consulting geophysicist, Consulting geologist - B.C., Alberta, Saskatchewan, N.W.T., Yukon, western U.S.A.

Three years geophysicist with Glen E. White Geophysical Consulting \& Services Ltd.








