

DIAMOND DRILLING REPORT
on the
SAM GROUP OF MINERAL CLAIMS
EAST BARRIERE LAKE AREA
KAMLOOPS MINING DIVISION
NTS 82M/5E

Lat. 51° 17' Long. 119° 44'

for

TRANS WEST MINERALS LTD.
Owner and Operator

by

JAY D. MURPHY, P. Eng.
CONSULTING GEOLOGICAL ENGINEER

1981-08-30

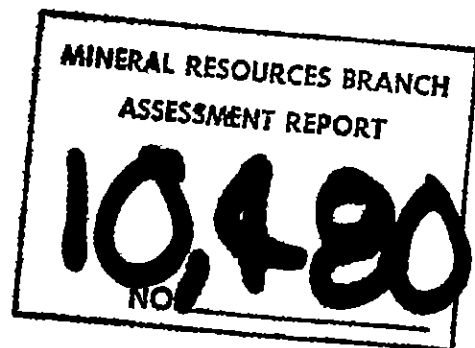


TABLE OF CONTENTS

	<u>Page No.</u>
INTRODUCTION	1
SUMMARY AND CONCLUSIONS	5
RECOMMENDATIONS	6
DISCUSSION OF RESULTS	8
(A) DIAMOND DRILLING	8
(B) GEOLOGY	9
(C) SAMPLING AND ASSAYING	10
STATEMENT OF COSTS	11
STATEMENT OF QUALIFICATIONS	13
BIBLIOGRAPHY	14

LIST OF ILLUSTRATIONS

PLATE NO. 1	Location Map 1:500,000	1
PLATE NO. 2	Claim Map & Property Geology 1:50000	2
PLATE NO. 3	Surface Plan 1:1000	4
PLATE NO. 4	Section 100 + 50 - N 1:500	8
PLATE NO. 5	Section 100 + 00 - N 1:500	8
PLATE NO. 5A	Section 100 + 00 - N 1:500	8
PLATE NO. 6	Section 99 + 75 - N 1:500	8

ADDENDA

		<u>Page No.</u>
Appendix No. 1	Log of Hole R-81-01	1 to 5
Appendix No. 2	Log of Hole R-81-02	1 & 2
Appendix No. 3	Log of Hole R-81-03	1 to 3
Appendix No. 4	Log of Hole R-81-04	1 to 3
Appendix No. 5	Log of Hole R-81-05	1 to 3
Appendix No. 6	Log of Hole R-81-06	1 & 2
Appendix No. 7	Assay Certificates	1 to 3
Appendix No. 8	Spectrographic Analysis	1

INTRODUCTION

The Sam Group of four mineral claims (28 units) is located on the south side of East Barriere Lake near the east end. (Plate No. 1) This group covers most of John Creek and parts of Fisson and Deadfall Creeks as illustrated by Plate No. 2.

Access is from Barriere on the Yellowhead Highway, a distance of 37 Km. The first 11 Km from Barriere is hard surfaced, the next 11 Km is well maintained gravel serving logging operations and tourists. The final 15 Km is a disused logging road that was only upgraded this spring in preparation for resumed logging in the claims area. This section was ditched and culverted prior to the drilling program but was graded only recently, and is now in good condition. Travel time from Barriere is currently about 45 minutes maximum.

The area of current interest occupies a moderate slope facing northwest and drained by a series of small, fast flowing streams emptying into East Barriere Lake at an elevation of approximately 625 m. Elevations within the Sam Group vary from 760 m at the northwest corner to 1,370 m at the southeast corner. The area south of the main access road and west of the drilling baseline (Plate No. 3) has been logged over within the last decade. Between the access road and East Barriere Lake is fairly open cedar forest sloping gradually to lake level.

The Sam Group occupies part of a large block of ground held through options and staking by Canadian Superior Exploration in 1971. Work at this time included line cutting, a geochemical survey for copper in soils (1,832 samples), 22.5 Km of induced polarization survey and 865 m of diamond drilling. Three zones of potential economic interest were outlined that for clarity will be referred to in this report as the Bex, Fennell and Fisson Zones respectively.

The Bex Zone is a large, linear, northwest trending I.P. anomaly with coincident anomalous copper geochemistry having dimensions of approximately 200 by 900 m. Location is in the northern portion of the Sam Group about 800 m north of John Creek. Plans show the Bex Zone was tested by five diamond drill holes on three sections approximately 485 m apart. Assay data indicates a sixth hole was drilled. The location of this hole is not recorded but is estimated to be in the extreme northwest end of the zone, 120 to 180 m northwest of the section containing holes 71-4 and 71-5. Assay results and drilling data are summarized below.

North
ASTRONOMIC

120°



PLATE NO. 1



TRANS WEST MINERALS LTD

SAM GROUP

KAMLOOPS M.D. 82M/5E

LOCATION MAP

J.D. Murphy

1:500000

81-07-06

<u>Hole No.</u>	<u>Total Depth(m)</u>	<u>Assay Interval (m)</u>	<u>Assay Width (m)</u>	<u>Assay % Cu</u>
71-1	152.4	85.3 - 103.6	18.3	.08
71-2	109.7	70.1 - 100.6	30.5	.12
71-3	149.3	6.1 - 51.8	45.7	.11
71-4	152.4	6.1 - 27.4	21.3	.10
		27.4 - 54.8	27.4	.16
71-5	152.4	6.1 - 152.4	146.3	.01
71-6	149.3	6.1 - 18.3	12.2	.13

Individual assays varied from trace to .35% copper over 3.05 m.

The Fisson Zone is a strong I.P. anomaly trending northwest along both sides of Fisson Creek for approximately 1,450 m with an average width of about 750 m. Only background values from geochemical soil samples are recorded here. Graphitic sediments were reported in the general area and were assumed to cause the I.P. response although the corresponding geological map shows no actual outcrops of any kind within the anomalous area. No further work was done on the Fisson Zone.

The Fennell Zone is located about 300 m south of John Creek and consists of definite to probably anomalous I.P. responses on two lines about 250 m apart giving a northwest trending anomalous zone 140 m wide. Chalcopyrite mineralization exposed in the 'discovery' trench prior to 1971 was found to lie midway between the two lines and exactly on strike with the trend of the I.P. anomaly. A few scattered anomalous copper values in soil samples occur within and peripheral to this anomaly. No additional work was done on the Fennell Zone by Canadian Superior, reportedly because the I.P. anomaly was relatively small and did not appear to persist at depth. Furthermore, the Bex Zone undoubtedly appeared a more attractive drill target, particularly with respect to developing a porphyry type deposit.

Canadian Superior terminated the option agreement in late 1971 and all claims were subsequently permitted to lapse.

Following is a brief chronological history of the Fennell Zone so far as can be determined from available assessment reports.

1966 & 67 - Prospecting and bulldozer trenching located copper mineralization adjacent to logging road. 63 claims staked by Barriere Exploration Ltd. (J.A. Fennell et al).

NORTH
ASTRONOMIC

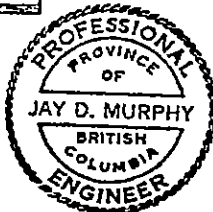
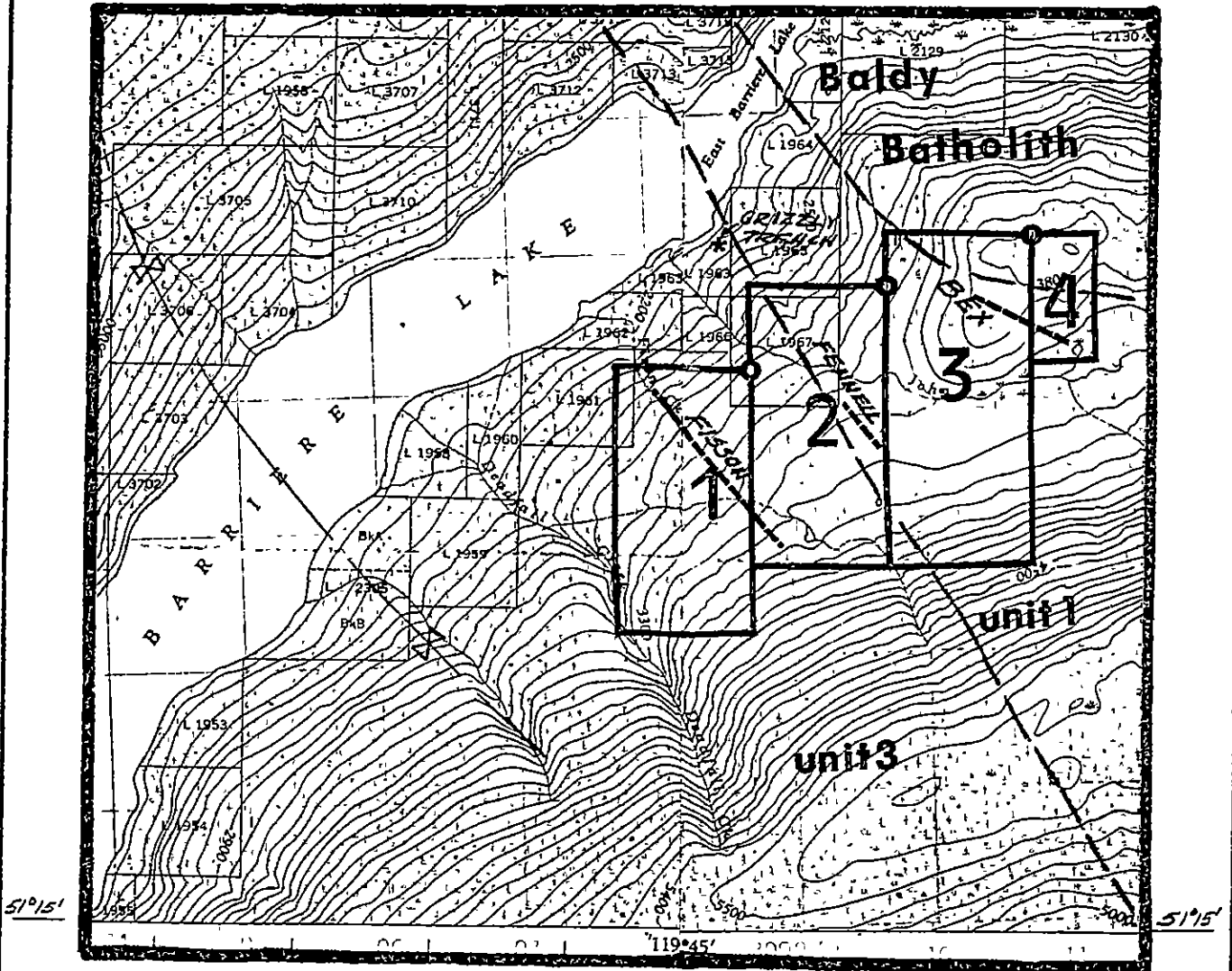


PLATE NO. 2

TRANS WEST MINERALS LTD.

SAM GROUP

KAMLOOPS H.D. BRM/SE

CLAIM MAP &
PROPERTY GEOLOGY

J.D. Murphy

1:50000

81-07-06

- 1967 - Magnetic and geochemical survey conducted by W.S. Read over approximately one square kilometre centred on discovery trench. Assessment report 1634.
- 1967 - 1969 Bulldozer trenching and X-Ray drilling in 5 holes reportedly carried out by Barriere Exploration, including hole plotted on Plate No. 3.
- 1971 - Optioned to Canadian Superior Exploration by Barriere Exploration. Subsequent work programme is outlined above. Option terminated.
- 1971 - 1976 All claims in the area lapsed.
- 1976 - Fennell Zone staked as Jay mineral claim (4 units) by J.A. Fennell. Bear claims tied on to northwest by Marston Fennell.
- 1976 - 1977 Trench No. 1 excavated in rock on site of discovery trench. Approximately 45 cubic metres of material removed.
- 1977 In October Trench No. 1 was mapped out and sampled by the writer for assessment credit. Five grab samples gave copper values of .04 to .56% across an 18 m trench width.
- Circa 1978 - Magnetometer survey conducted over trenched area by unknown company. Results on file.
- 1979 - Magnetometer survey conducted over trenched area by Noranda Exploration. Results on file.
- 1980 - In May, Noranda Exploration located the EB #1 claim (9 units) north of the Jay claim, over-staking two units of this claim and part of the Bear #1 Claim.

- 1980 - 1981 Trans West Minerals staked 14 units and 2-Post claims adjacent to the Jay and EB #1 claims.
- 1981 - Ownership of EB #1 Claim transferred from Noranda to J.A. Fennell. Jay and EB #1 claims purchased from J.A. Fennell and Bear #1 from Marston Fennell by Trans West Minerals.

In May and June a diamond drilling programme was completed. In June all Trans West Minerals ground was abandoned and restaked as the Sam Group of four mineral claims. All overlapping claims and 2-Post claims were eliminated. Map mislocation of ground covered by the Jay and Bear #1 claims was corrected.

Correlation of previous geophysical data on the Fennell Zone indicates a strong I.P. anomaly (6 to 8.5% frequency effect) over 300 m in length and flanked by discontinuous magnetic highs to 3,000 gammas above background. Significant sulphide mineralization, including chalcopyrite, in Trench No. 1 correlates well with the surface plot of high metal factor values calculated from the I.P. data. This was interpreted to indicate the Fennell Zone represented a potential mineralized block that to a depth of 135 m could contain 1.5 million metric tons in the .5 to 1.0% copper range, sufficient incentive for an exploratory drill programme.

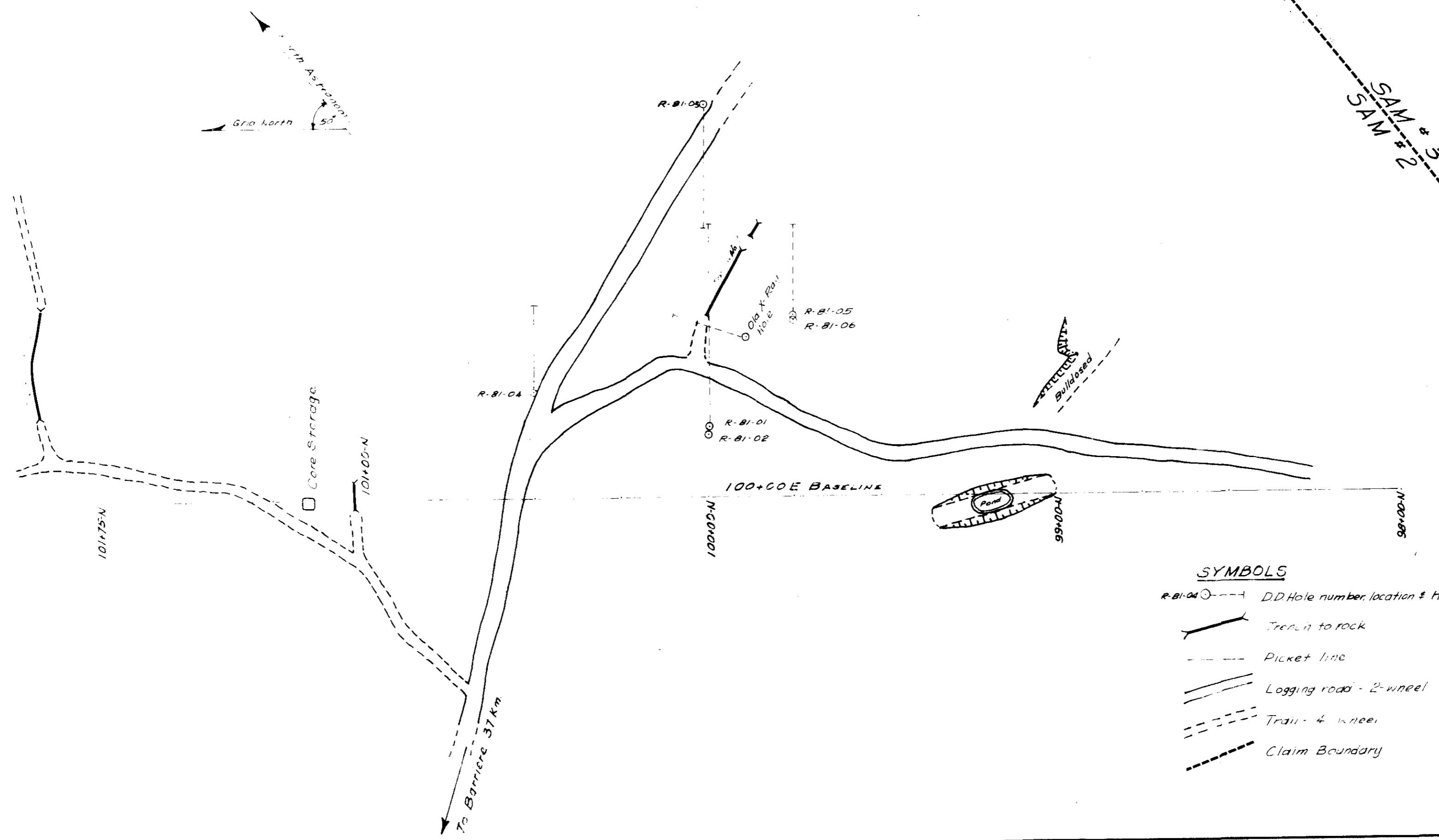
Diamond drilling of six B Q size holes totalling 258 m was begun in late May and completed June 10th. The results of this work constitute the subject of this report.

Preparatory to diamond drilling 375 m of base line was established with station pickets set at 25 m intervals. Line orientation was set by compass at N-50°-W to parallel the indicated trend at the Fennell Zone, this direction being the "Mine North" of the grid system. In the discussion that follows, all directions are given relative to Astronomic North unless stated otherwise. After setting the initial pickets by compass to establish direction, the base line was projected by lining in each picket by eye. The line thus established was used to locate the collar and line of each hole and to tie in physical features such as roads and trenches. All distances were measured by hip chain. The resultant survey is illustrated by Plate No. 3. Ground elevation at the collar of hole R-81-1 was assigned the arbitrary mine elevation of 1000.0 m. Levels were carried from this point by Brunton compass.

A core rack, logging bench and core splitter base were constructed to facilitate core handling and storage. Drilling was contracted to Adam Drilling of Princeton on a subcontract from Allan Drilling of Merritt.

NOTE:
 Survey by compass and hip chain.
 Ground elevation at collar R-81-01 assigned arbitrary
 elevation of 1000.0 m. Levels carried by Brunton.

MINERAL RESOURCES BRANCH
 ASSESSMENT REPORT
10,480
 NO.



SYMBOLS

- R-81-04 ○ --- D.D. Hole number, location & horizontal trace
- Trench to rock
- - - Picket line
- == Logging road - 2-wheel
- - - - - Trail - 4 wheel
- - - - - Claim Boundary



PLATE NO. 3
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 SAM GROUP
 KAMLOOPS M.D. 82M, SE
SURFACE PLAN
 J.D. Murphy 1:1000 81-06-28

Progress was relatively slow due to extremely hard ground, otherwise little difficulty was encountered. Core recovery was excellent. Overburden was shallow in all holes with a maximum cased depth of 5.4 m. A suitable water supply was found readily available in John Creek and smaller streams active during the runoff period. A maximum water line length of 300 m was required when drawing from John Creek.

All core was logged and racked. Mineralized sections were split and samples of half core delivered to Kamloops Research and Assay Laboratory for analysis. Results are recorded on the appended drill log sheets. All drill collars were plugged and marked by wooden pickets to assist future location.

SUMMARY AND CONCLUSIONS

Results from six diamond drill holes completed in the immediate area of Trench No. 1 did not return significant values in base or precious metals. Good sulphides were encountered in several holes but none of the inter-sections carried copper mineralization comparable to that seen in the trench itself. It is concluded that copper mineralization occurring in Trench No. 1 represents a very restricted lens that does not persist down dip or along strike more than a few tens of metres, and consequently has little economic value per se.

Mineralization appears to be strata bound, dipping mine west at approximately 20°. This is a negative factor as regards underground mining, but could be an advantage if sufficient near surface tonnage could be developed to warrant an open pit operation.

Host rocks are mainly non magnetic except where sulphide mineralization is apparent. Most magnetism is attributed to pyrrhotite. Some strongly magnetic sections due to magnetite were noted but these usually carry sulphides as well. Magnetism is associated primarily with the hornfels unit but some gneissic bands carrying disseminated sulphides are also weakly magnetic. It is concluded, therefore, that magnetic highs are usually indicative of sulphide mineralization. It follows that magnetic methods are a cheap and effective tool for outlining new areas of potential economic value.

In the Bex Zone, the problem is to define specific targets of higher grade material within the large area of anomalous I.P. response and associated disseminated sulphide mineralization. A VLF survey combined with magnetics is considered the most effective method to accomplish this.

The Fennell Zone contains two targets determined by previous surveys that warrant drill testing, one being a small magnetic high, the other a strong I.P. response. Both lie on the projected extensions of mineralization exposed in Trench No. 1 and tested by current drilling. The problem is the apparent inaccuracy of location of these and other physical features when compared with the current survey illustrated by Plate No. 3. To accurately locate magnetic and conductive zones that may require drilling, the Fennell Zone should be resurveyed on a 50 m grid line spacing, using both magnetic and VLF methods.

The Fisson Zone consists of a very large area of strong I.P. response that previous operators attributed to graphite sediments. However, according to geological maps compiled by the same operator, there are practically no rock exposures within this zone, indicating there can be little physical evidence for assuming graphite is the source for all anomalous I.P. values. Sulphide zones, if present, should yield above background magnetism. A magnetic survey is warranted to make this determination.

RECOMMENDATIONS

1. Prospect the Sam Group to make geological correlations and examine mineralized areas reported but not seen to date.
2. Re-establish and extend the old Hudson Bay Exploration and Development grid system (21 Km of baseline, 17 Km of picket line) to adequately cover the Bex, Fennell and Fisson Zones. Lines are to be 100 m apart with stations 25 m apart. Fill in lines to give 50 m spacing will be required in the Fennell Zone.
3. On the Bex Zone conduct a magnetometer and VLF electro-magnetic survey using a Ronka 16 or equivalent instrument.
4. On the Fennell Zone conduct a magnetometer and VLF survey at 50 m line spacing, extending the survey 400 m northwest along strike at 100 m line spacing.
5. On the Fisson Zone conduct a magnetometer survey.

Further recommendations will depend on the results of this work.

Costs for the above recommendations are estimated as follows:

Geology and Prospecting

5 days at \$200	=	1,000	
Assaying		<u>100</u>	
		1,100	1,100

Bex Zone

1.6 Km transit line @	\$400 =	640	
7.2 Km picket line @	100 =	720	
7.2 Km Mag and Em @	250 =	<u>1,800</u>	
		3,160	3,160

Fennell Zone

2.3 Km transit line @	\$400 =	920	
7.2 Km picket line @	100 =	720	
8.0 Km reflag old line @	50 =	400	
9.0 Km EM @	125 =	1,125	
15.2 Km Mag @	125 =	<u>1,900</u>	
		5,065	5,065

Fisson Zone

2.1 Km transit line @	\$400 =	840	
12 Km picket line @	100 =	1,200	
8 Km reflag old line @	50 =	400	
15 Km Mag @	125 =	<u>1,875</u>	
		4,315	4,315

Drafting, plotting and reporting 2,000

Sub-total \$ 15,640
15% contingencies 2,346

Total Cost \$ 17,986 (say (\$18,000))

DISCUSSION OF RESULTS

(A) DIAMOND DRILLING

Hole R-81-01 was sited to drill Mine east at 45° dip to pass below the west end of Trench No. 1 at a vertical depth of 30 m. (Plates 3 & 5). From surface mapping the mineralized formation exposed in the trench was interpreted to be dipping mine west at 30 to 60°. Mineralization was therefore expected to be cut before reaching a vertical depth of 30 m, equivalent to a hole depth of 45 m. In fact, the first heavily mineralized band of pyrrhotite with chalcopyrite was intersected at 30 m, indicating a formation dip of approximately 20° mine west, appreciably flatter than anticipated. More sulphides were cut from 32 to 37 m but neither intersection contained chalcopyrite equivalent in tenor to that occurring in Trench No. 1. Consequently, there was some doubt whether the down dip extension of the surface mineralization had actually been reached. To ensure that possible steeply dipping mineralization was not missed the hole was advanced to a point vertically below the east end of Trench No. 1 at a vertical depth of 57.6 m.

Hole R-81-02 was drilled vertically from the same set up as R-81-01 to confirm the interpreted dip of 20° mine west and to check for mineralization at the projected down dip extension. No significant sulphides were noted but the interpreted dip was substantiated geologically.

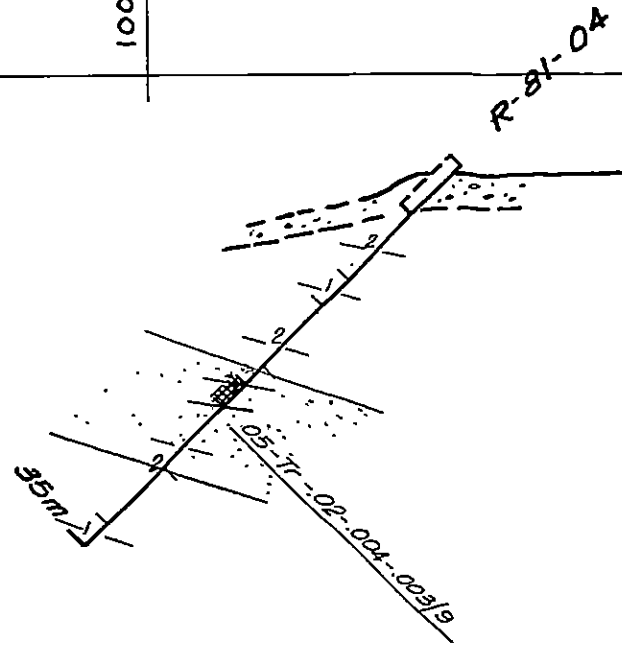
In the first two holes no sulphide intersections were made that appeared to correlate in character or grade with the trench mineralization. Furthermore, the true attitude of mineralization in Trench No. 1 is not well defined. These facts suggested that potentially economic sulphides might be associated with some unrecognized structure having a steep dip in the opposite direction to that of the relatively flat lying rock formations. To eliminate this possibility, Hole R-81-03 was drilled in the same section as the first two holes but in the opposite direction, mine west instead of mine east. No significant mineralization or structures were cut. Geology of this hole added support to the interpreted formational dip.

EAST







WEST

100+50·E

MINE EL. 1000.0m



LEGEND

-  OVERBURDEN
-  DIORITE PORPHYRY DIKE
-  HORNFELS
-  QUARTZITE
-  SULPHIDES
- 

ASSAY DATA

.05-TR-02-004-003/9 = $\frac{\%Cu - \%Co - \%Ni - oz/TON Au - oz/TON Ag}{WIDTH (METRES)}$

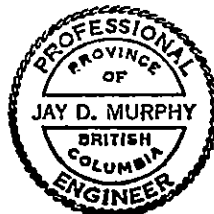
PLATE NO. 4

TRANS WEST MINERALS LTD.

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SECTION 100+50-N



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1: 500

81-06-28

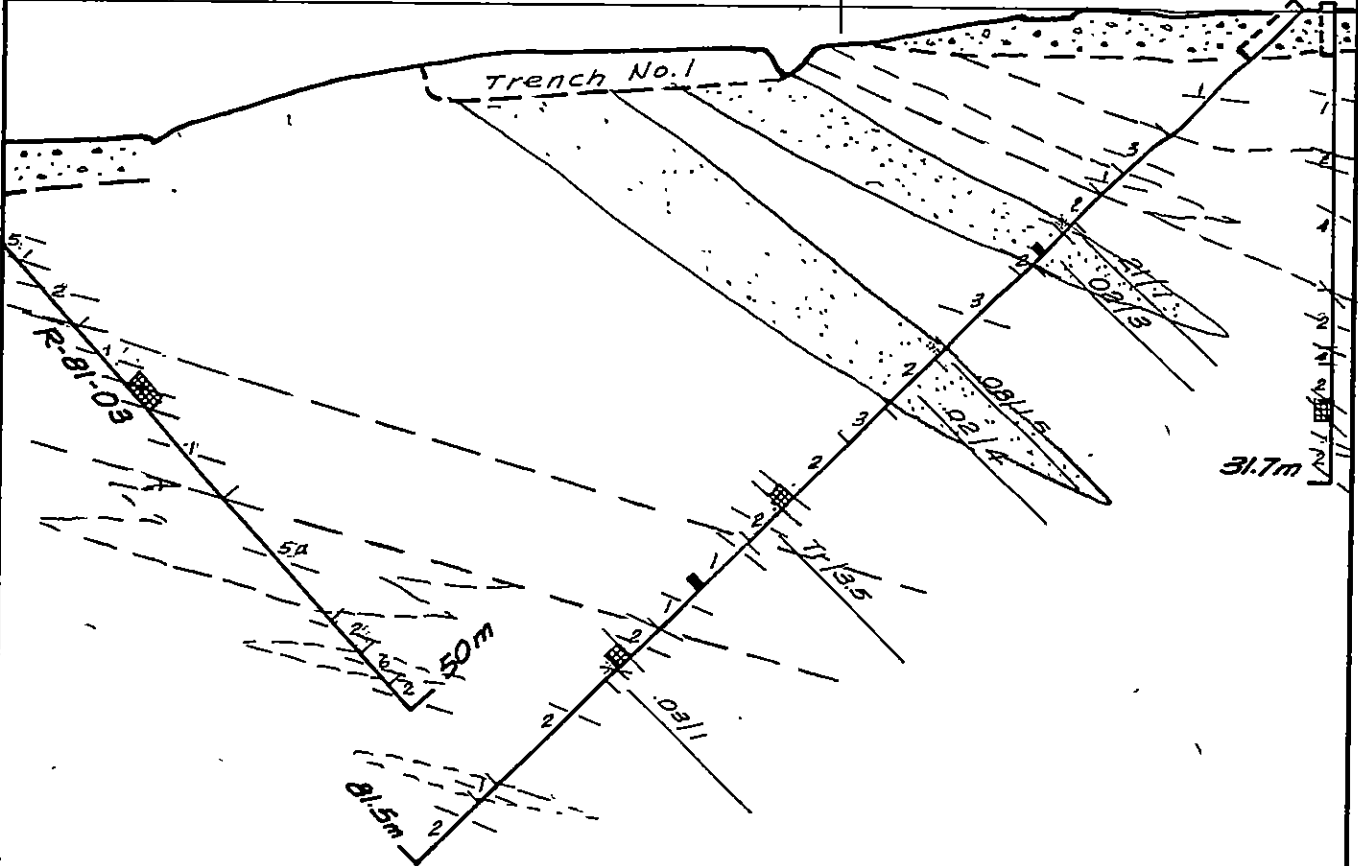
EAST

WEST



MINE EL. 1000.0m

100+50·E







R-81-01
R-81-02



SYMBOLS

-  SULPHIDES
-  LOST CORE

LEGEND

-  OVERBURDEN
-  DIORITE DIKE
-  QUARTZ AUGEN GNEISS
-  GRANULITE
-  HORNFELS
-  QUARTZITE

ASSAY DATA

.05-TR-.02-.004-.003/9 = %CU-%CO-%NI-OZ/TON AU-OZ/TON Ag
 WIDTH (METRES)

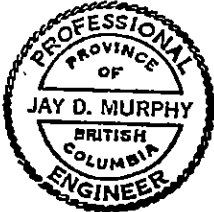


PLATE NO. 5

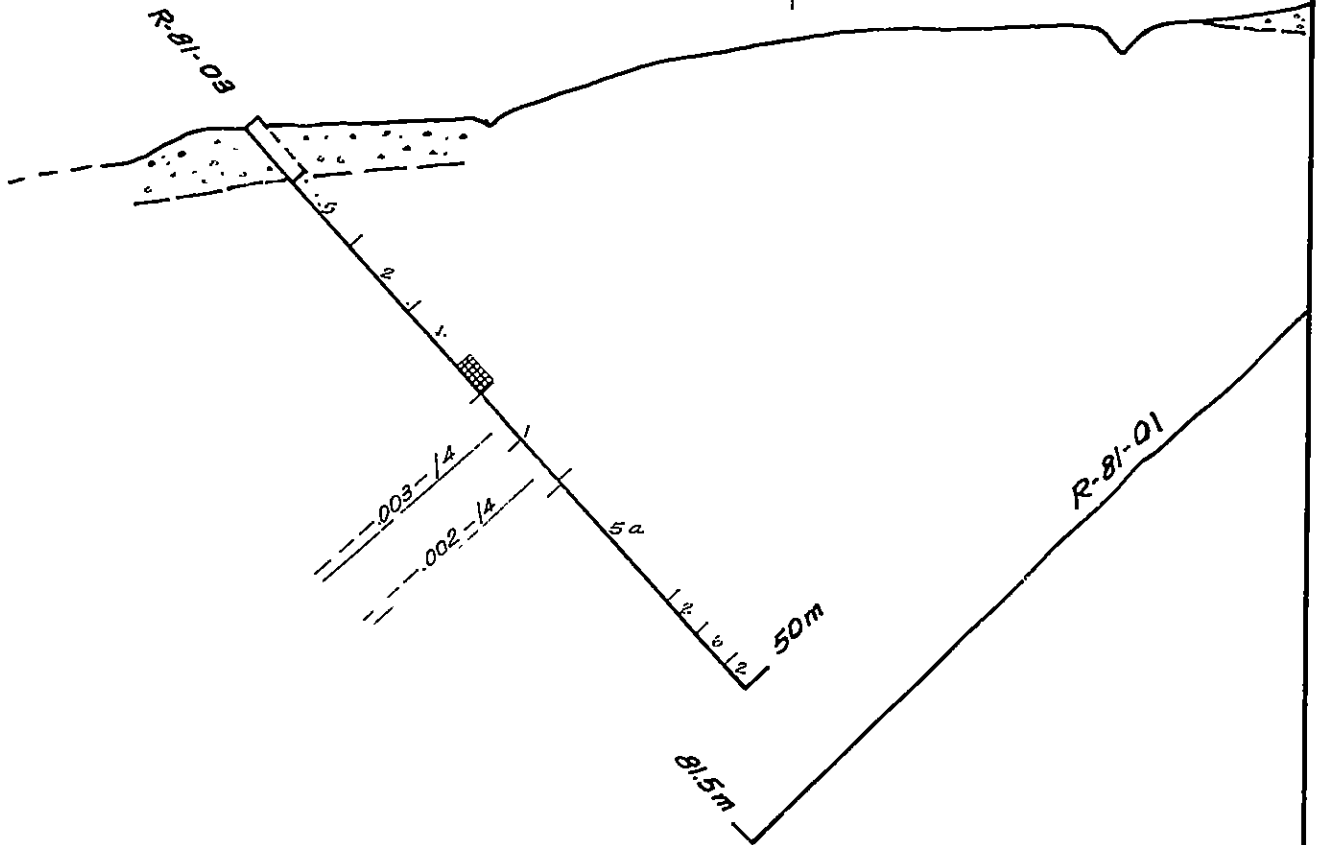
TRANS WEST MINERALS LTD.		
SAM GROUP		
KAMLOOPS M.D. 82 M/5E		
SECTION 100+00 N		
J.D MURPHY	1: 500	81-06-28

EAST


WEST

MINE EL. 1000.0m

100+75·E




SYMBOLS

 SULPHIDES


LEGEND


 OVERBURDEN

 DIORITE DIKE

 BIOTITIC QTZ EYE SCHIST

 FELDSPAR BIOTITE GNEISS (d) GARNET

 HORNFELS

 QUARTZITE

ASSAY DATA

.05-TR-.02-.004-.002/9 = $\frac{\%Cu - \%Co - \%Ni \cdot OZ/TON Au - OZ/TON Ag}{WIDTH (METRES)}$

PLATE NO. 5A

TRANS WEST MINERALS LTD.

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SECTION 100+00-N



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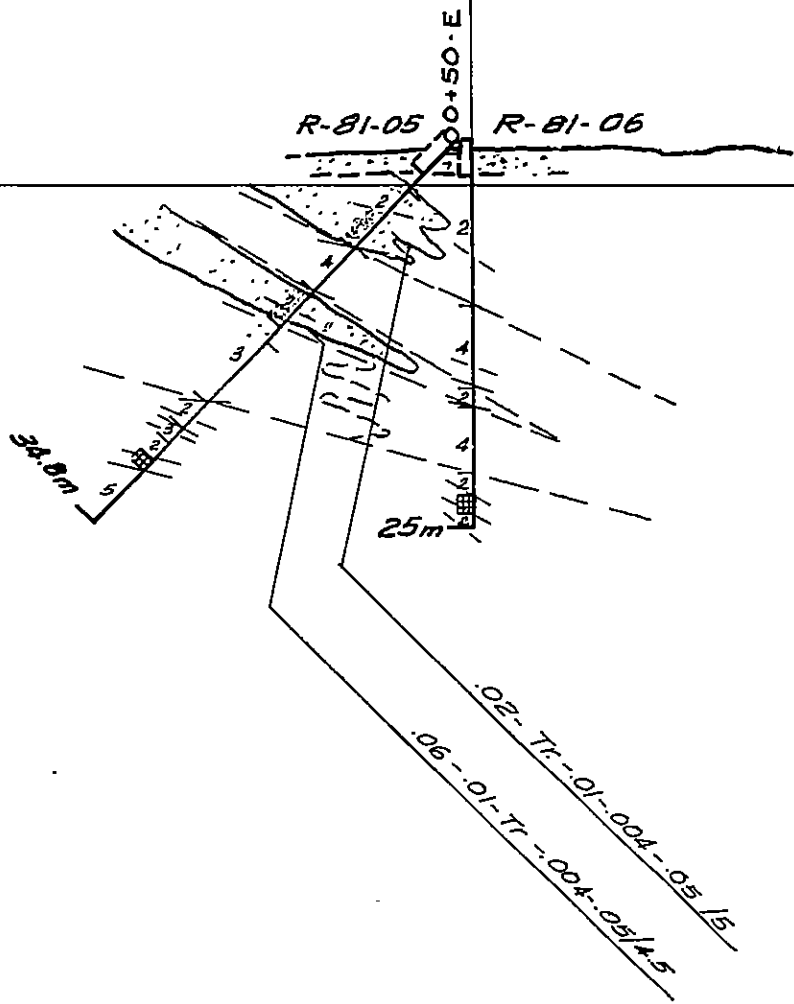
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EAST

WEST







MINE EL. 1000.0M



SYMBOLS

 SULPHIDES

LEGEND

-  OVERBURDEN
-  DIORITE DIKE
-  5 FELDSPAR-BIOTITE GNEISS
-  4 QUARTZ AUGEN GNEISS
-  3 GRANULITE
-  2 HORNFELS

ASSAY DATA

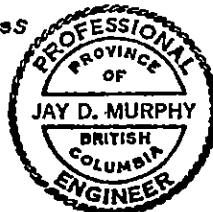
.05-TR-.02-.004-.002/3 = $\frac{\%Cu - \%Co - \%Ni - oz/TON Au - oz/TON Ag}{WIDTH (METRES)}$

PLATE NO.6

TRANS WEST MINERALS LTD.

SAM GROUP
KAMLOOPS M.D. 82 M/5E

SECTION 99+75 N



J.D.MURPHY

1:500

81-06-28

Concluding that the mineralization as seen in Trench No. 1 has a relatively flat dip mine west, Hole R-81-04 was drilled as a 50 m step out to the north from the section of the first three holes. Fair sulphides, mainly pyrrhotite, were intersected across 9 m but only low metal values were returned. Similarly, Holes R-81-5 and 06 were drilled as a 25 m step out to the south from the section of Holes R-81-01 to 03. Two fair sulphide bands with a combined width of 9.5 m were cut in Hole R-81-05 but returned only insignificant values in base and precious metals. These sulphide bands are apparently restricted down dip since they were not cut by Hole R-81-06, drilled vertically from the same set up (Plate No. 6).

(B) GEOLOGY

The claims area is underlain by metasedimentary rocks of the late Devonian or early Missippian Eagle Bay Formation intruded by granitic rocks of the Cretaceous Baldy Batholith. Recent work by Preto et al of the Geological Division, Ministry of Energy, Mines and Petroleum Resources, sub divides the Eagle Bay Formation into 11 distinct units. Units 1 and 3 underlie the Sam Group of claims. Preto describes unit 1 as lithologically similar to but generally more highly metamorphosed than other units of the Eagle Bay Formation, consisting of amphibolite, micaceous quartzite, garnet-biotite schist and impure marble. Unit 3 is described as grit, quartzite, phyllite, impure limestone and minor greenschist. The contact between the two units was previously thought to represent a structural discontinuity but now is considered to be the boundary between conformable but lithologically distinct units. These units dip southwest at low angles towards the axis of a shallow open synform as illustrated on Plate No. 2.

The contact between units 1 and 3 is shown passing close to the mineralized Fennell Zone. Drilling indicates that Fennell Zone rocks consist of highly argillaceous rocks (hornfels) with lesser interbands and lenses of arenaceous material yielding impure quartzites and several feldspathic gneissic varieties. Minor granulite and schistose bands are also present. It is concluded that the Fennell Zone is situated close to the contact with Unit 3 but lies within rocks of Unit 1.

Drill Sections illustrated by Plates 4 and 5 indicate the economically favourable zone is a 30 m thick bed of hornfels dipping mine west at 17 to 22°, overlain by a 7 m thick quartzite bed and underlain by another bed of quartzite approximately 8 m thick. Sulphide mineralization occurs in the upper 20 m of the hornfels bed and, for the most part, appears conformable with banding within this unit. Below the lower quartzite band are barren hornfels, gneisses and minor quartzite.

C. SAMPLING AND ASSAYING

All samples of half core were assayed for copper with the exception of two from hole R-81-03 that were run for gold only. Individual samples from holes R-81-04 and 05 were used to compile composite samples subsequently assayed for cobalt, nickel, gold and silver.

Results are recorded on the drill sections and logs. No samples were taken from holes R-81-02 or R-81-06.

Copper assays from core samples varied from trace to .21%. Cobalt and nickel values were significant, as were results from gold and silver assays.

Atomic absorption techniques were used in analysing for base metals, fire assaying techniques for precious metals.

Two composite samples from hole R-81-05 were combined and sent to Speccomp Services in Boise, Idaho for spectrographic analysis. No significant amounts of any element were found. Results are appended.

Five grab samples were taken from the old Grizzly trench which lies outside the claim group (Plate No. 2) but is roughly on strike with the copper geochemical anomaly of the Bex Zone. A trench width of approximately 75 m was sampled. Copper assays ranged from 12 to .39%. Results are appended.

STATEMENT OF COSTS

The following expenses were incurred on the Sam Group of mineral claims. Diamond drilling was carried out under contract by Adam Drilling between 1981-05-26 and 1981-06-10. Drill preparation, supervision and reporting was done between 81-05-25 and 81-08-31. This work was done by J.D. Murphy, P. Eng. and P.N. Murphy, field assistant.

DIAMOND DRILLING

Contract drilling 258 m BQ hole @ \$66/m	\$17,028.00	
Moving time - 30 man hours @ \$20/hr.	600.00	
Tractor time - 18.5 hours @ \$35/hr.	647.00	
'Quik Gel" - 4 bags @ \$11.43/bag	45.72	
Alcomer Liquid Mud - 1 pail at \$178	178.00	
Mobilization & demobilization from Kamloops	<u>1,000.00</u>	
Total Diamond Drilling	\$19,499.22	\$19,499.22

DRILL PREPARATION AND SUPERVISION

Labour:

2 days baseline survey and core rack construction @ \$90.	180.00	
16 days drill supervision, logging, sampling, etc. @ \$200.	3,200.00	
81-07-10 - 1 day re-examine drill core @ 200	200.00	
81-07-27 - 1 day surface sampling @ \$200	200.00	
81-08-29 - 1 day check old line grid @ \$200	<u>200.00</u>	
Total Labour	\$ 3,980.00	

Food and Accommodation - 16 days at \$25/day 400.00

Transportation:

1-day Budget truck rental plus 278 Km at \$.12/Km	74.48	
9 days 4 x 4 rental @ \$20.00	180.00	
4 x 4 mileage - 977 @ \$.25/mile	244.25	
Car Mileage - 712 @ \$.20/mile	<u>142.40</u>	
Total Transportation	\$ 641.13	

STATEMENT OF COSTS - cont'd.

Supplies

50 only BQ size core boxes @ \$2.50	\$ 125.00	
Core rack hardware	<u>6.74</u>	

Total Supplies	\$ 131.74	
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Total Drill Preparation and Supervision	\$ 5,152.87	\$ 5,152.87
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ASSAYING

19-copper @ \$6.00	\$114.00	
3-gold @ \$8.00	24.00	
3-gold & silver @ \$11.00	33.00	
3-cobalt @ \$6.50	19.50	
3-nickel @ \$7.50	22.50	
12-samples composited @ \$.75	9.00	
1-spectrographic analysis	<u>30.00</u>	

Total direct charges	\$252.00	
15% surcharge	37.80	

Total Assaying	\$289.80	289.80
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REPORT PREPARATION

7 days drafting and reporting @ \$200	\$ 1,400.00	
17 pages typing @ \$10./page	170.00	
47 pages photocopying @ \$3/page	131.00	
7 plates blueprinting & Photocopying @ \$10/plate	<u>70.00</u>	

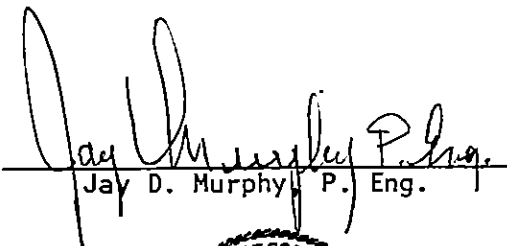
Total Report preparation	\$ 1,771.00	\$ 1,771.00
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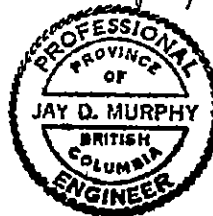
TOTAL COSTS		\$26,712.89
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STATEMENT OF QUALIFICATIONS

I, Jay D. Murphy, hereby certify:

1. That I am a Consulting Geological Engineer, resident at 1335 Todd Road, Kamloops, B.C.
2. That I am a graduate from the University of Manitoba, (1954) with a B. Sc. in Geological Engineering.
3. That I have practiced my profession continuously since graduation.
4. That I am a member of the Association of Professional Engineers of British Columbia and Ontario.
5. That the information contained in this report is based on a personal examination of the subject property.
6. That I have no financial interest in the subject property.


Jay D. Murphy, P. Eng.



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- RAINBOTH, W. Geochemical and Geophysical Report
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- READ, W.S. Magnetometer and Geochemical Surveys
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DIAMOND DRILL CORE LOG - SAMPLE RECORD

DEPTH	DIP	BEARING AST.
COLLAR	45°	N-40°-E

PROPERTY SAM GROUP CLAIM SAM #2 HOLE NO. R-81-01
 LATITUDE 10000.0-N STARTED 1981-05-27 CORE SIZE BQ
 DEPARTURE 10020.0-E FINISHED 1981-06-01 SECTION 100+00-N
 ELEVATION 1000.0m TOTAL LENGTH 81.5m
 LOGGED BY [Signature]

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m					
0.0	CASING: stick up 0.5m, casing pulled										
4.1	QUARTZITE: med. grey, f.g., impure w. abund f.g. to m.g. biotite & sericite flakes, fair to good primary banding @ 45-55, barren of sulphides, no magnetite noted, btm. chf. distinct @ 65										
11.7	GRANULITE: grey green, med. grained, w/ky banded @ 60-65, consists of aqpt. equal volume dark green chloritic ferromagn (pyroxene?) & white argillie felds. w. carb. alt'n, no min. noted,										
15.3	QUARTZITE: as described, banding consistent @ 55, chfs distinct @ 60-65,										
17.2	HORNFELS: mainly dark green w. light grey green patches & bnds, f.g., non uniform aspect, varies from massive to										

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

 PROPERTY SAM GROUP

 HOLE No. R-81-01

 SHEET No. 2 of 5

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m	Cu				
17.2	HORNIFELS (contd) excellent banding mainly w 60, lesser banding w 70, v. hard, tough rock w. some heavy sulphide bands as noted,	50% Phe w Cpy	092	20.0	21.0	1.0	.21				
20.3-70 cm	band 50-60% Pyrrhotite w. minor Cpy near top etc., some wk. banding w 60-70,	minor st. Phe	093	21.0	25.0	4.0	.02				
22.5-70 cm	Lost CORE, tube not locked.										
24.8	GRANULITE: as described, massive to wkly. banded w 60, uniform, barren										
31.7	HORNIFELS: as described, some excellent banding w 55-65, strong Phe. sections w: minor Cpy. as noted,	strong Phe, minor Cpy	094	31.5	33.0	1.5	.08				
32.2-50 cm	heavy Phe. to 50-60% well banded w 55-70	wk Phe. w Cpy	095	33.0	37.0	4.0	.02				
37.6	GRANULITE: med. to light grey, med. grained, generally wk. banding w 60-65 w. 40 cm at start section well banded w 50, f.g. carb. present giving moderate										
41.0	reaction to HCl, barren of sulphides,										

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

PROPERTY SAM GROUP

HOLE No. R-81-01

SHEET No. 3 of 5

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m					
41.0	HORNFELS: dark to medium green, f.g. to m.g., massive to fair banding as 65-70, some wk Pho. min.										
	40.0 - 20 cm. creamy white f.g. felsic dike, cts. & sharp as 70 & 60,										
	40.2 - 70 cm w 10% pinkish grey irreg. patches f.g. garnet,										
	40.9 - 100 cm w. 25-30% white qtz. & carb. vns. & str as 40 & as irreg. blebs sub parallel to core axis, some fair Pho. min.										
	44.4 - 45.5 - mottled section w. m.g. grey granite in f.g. green matrix, wk binding as 65										
45.8	DIOKITE DIKE: med. grey, m.g., biotitic, barren, cts sharp as 80-85										
47.0	HORNFELS: as described, scald f.g. pink garnet, chloritic in part, minor scald Pho. & Py, mainly massive w. some fair banding as 65-75,	wk Pho w minor Cpy	096	47.0	50.5	3.5	Tr.				
50.2											

ATTENDANT NO. 1 (3)

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

 PROPERTY SAM GROUP

 HOLE No. R-81-01

 SHEET No. 4 of 5

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m	Cu				
47.0	HORNFELS: (cont'd)										
	48.2- 20cm light grey felsic mdtl w 80% ⁺ , converging, probable quartz lens										
50.2	QUARTZITE: med grey, f.g. to sec. m.g. hnd., well banded w 65 w start and end X ⁿ , 51.5-53.0 well banded w 80-85, btm. clet. sharp w 70,										
58.3	HORNFELS: dark green, f.g, mainly well banded w 65, First 30 cm. only wkly banded w. scatd coarse pink garnet phenocrysts, to 1.5 cm, barren of sulphides.										
60.9	DIORITE DIKE: dark grey, m.g, uniform, biotitic, clets. sharp, unchilled w 90-50, barren										
61.2	HORNFELS: dark grey to med. to dark green, f.g, well banded w 60-70,										
	61.9 - 85cm dark grey to black band w 1-2% finely banded Pho & Py w minor Cpy	1-2% Pho & Py w. Cpy	097	62.0	63.0	1.0	.03				
73.5											

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

PROPERTY SAM GROUP

HOLE No. R-81-01

SHEET No. 5 of 5

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m						
61.9	HORNIFELS: (cont'd)											
	63.8-15 cm white qtz. @ 65,											
	minor Py & Cpy. along both walls,											
	67.5- 3 cm leasy grey qtz. @ 65 w											
	5% Pba. followed by 10 cm w											
	minor Pba. bnds. to .5 mm											
	69.3- 60 cm shattered zone w.											
	abund. rock frags. & clayey											
	but non plastic matl, 5% fractured,											
	glassy qtz. w. few m.g. Py cubes											
	near h. wall, shearing @ 40-50,											
	clayey gouge along f.w. slip.											
	70.0 - 50 cm. blocky frags followed											
	by 50 cm Qtz Egs Schist,											
73.5	QUARTZITE: med. to dark grey, f.g,											
	well banded @ 60-70, barren											
75.1	HORNIFELS: med. grey to green, f.g,											
	finely banded @ 65-70,											
	75.7- 81.5- arenaceous hornfels med.											
	grey rather than green											
	in color, coarse banding, abund.											
	carb. in part, moderately fractured											
	& blocky											
81.5	END OF HOLE											

DIAMOND DRILL CORE LOG - SAMPLE RECORD

DEPTH	DIP	BEARING AST.
COLLAR	90°	—

PROPERTY SAM GROUP CLAIM SAM⁴² HOLE NO. R-81-02
 LATITUDE 10000.0-N STARTED 1981-06-02 CORE SIZE RQ
 DEPARTURE 10018.2-E FINISHED 1981-06-02 SECTION 100100-N
 ELEVATION 1000.0 m TOTAL LENGTH 32.0 m LOGGED BY [Signature]

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m				
0.0	CASING: stick up 0.5 m, casing pulled									
3.3	QUARTZITE: dark grey, f.g. massive, bnd to well banded, barren, 3.3-7.6 - massive to wky banded in part, moderately brecciated w numerous fractured qtz. str. 5.0-20 cm LOST CORE, pyritic slip app. 11 to core axis 7.6-10.1 - well banded w 70-80, btm clet. sharp w 70-75,									
10.1	HORNFELS: dark grey-green, f.g. to m.g. biotite, chunk. clastic hornstone in part, fair banding w 70, barren, btm clet. sharp w 70-75,									
10.9	QUARTZ. AUGEN GNEISS: medium grey, blue grey qtz phenocrasts in f.g. feldspar-biotite matrix, distinctive augen structure w 10-15% circ. qtz									
19.1	'eyes', uniform, fair banding w 65-70									

DIAMOND DRILL CORE LOG — SAMPLE RECORD

 PROPERTY SAM GROUP

 HOLE No. R-81-02

 SHEET No. 2 of 2

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m												
19.1	HORNFEELS: dark green w. abund light grey to light green (epidote?) bands, garnetiferous to 5-10% over first 1.5m, soft & cherty in part, good banding mainly w 70 w some barren Zn's w 45, top ctct. w 45, possibly sheared																	
22.9-24.0	Qtz Augen Gneiss band as previously described, top ctct. sharp w 70, botm ctct. indefinite, cut & offset by str. w 25																	
26.6	DIERITE DICE: dark grey, m.g., massive, uniform, biotitic, barren, ctct. sharp & straight w 60 & 45,																	
27.1	HORNFEELS: as described, massive to 29.0, From here to end of hole good to fair banding w 65- to 80 w lesser bands to 55, final 1.0m becoming mottled & granitic in appearance w appreciable carb. 28.1- 2cm qtz. carb. str. w 40 w cpx Phs & minor Cpx																	
32.0	END OF HOLE																	

DIAMOND DRILL CORE LOG - SAMPLE RECORD

DEPTH	DIP	BEARING AST.
COLLAR	47 1/2°	S-40°-W

PROPERTY S.A.M. GROUP CLAIM SAM #2 HOLE NO. R-81-03
 LATITUDE 10000.0-N STARTED 1981-06-03 CORE SIZE BQ
 DEPARTURE 10111.0-E FINISHED 1981-06-05 SECTION 100+00-N
 ELEVATION 990.2 m TOTAL LENGTH 50.0 m
 LOGGED BY Paul Murphy

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m				
0.0	CASING: stuck up 0.5m, casing pulled									
4.8	FELDSPAR-BIOTITE GNEISS: med grey, greenish cast, f.g. to m.g. w laminations mainly < 1mm, well defined banding @ 20-35°, appreciable Phos to 5% conformable with laminations & as f.g. disseminations, occ. bleb. associated Cpy, hard & fairly uniform rock mainly grey felds w 5-10% biotite or hornblende laminae, minor fracturing @ low angles.									
10.6	HORNFELS: dark green massive to med. grey green w fair banding @ 35°, minor Phos. as isolated grains & blebs associated w qtz. str., minor grey white carb. w. qtz. str. & as narrow irreg. str. heating w/ fractures sub parallel to core axis, grades to quartzite; 11-10 cm qtz sharp @ 35-40 in half									
13.3	core displaced by carb filled slip to core,									

APPENDIX NO. 3 (1)

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

 PROPERTY SAN GROUP

 HOLE No. R-81-03

 SHEET No. 2 of 3

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m					
10.6	HOENFELS (cont'd) Phos. blebs along fracture, 13.7-20 cm glassy white qtz., top ctct. blocky @ appx 30, btm ctct. broken @ 35,										
13.3	QUARTZITE: med. grey f.g. massive to wtkly banded @ 30-35, barren, fractured, blocky										
18.0-21.3	sheared Quartzite, similar to foregoing kn but w 15-20% grey qtz as rode bits & crse lensy fragments, poorly banded @ 40, overall wtkly sh'd fragmental appearance, btm. ctct. sharp @ 30, minor fine dissem. Pho.										
21.3	DICRITE DIKE: dark grey, m.g., massive, uniform, biotitic, occ. bleb Pho, btm. ctct. sharp @ 30-35.										
23.5	QUARTZITE: med. grey, f.g. near: massive with only v. wk banding @ 30,										

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

 PROPERTY SAN GROUP

 HOLE No. R-81-03

 SHEET No. 3 of 3

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m	ALL				
23.5	QUARTZITE (cont'd) barren sericitic bands to 5-10%,	minor Ph & Py	098	23.5	27.5	4.0	.003				
	interbedded gneissic mat'l near end X",	" " "	099	27.5	31.5	4.0	.002				
31.3	GARNETIFEROUS FELDSPAR-FICIENT GNEISS										
	med. to light grey, m.g., excellent banding w 25-40, predominantly 30, uniform, 5% scotid m.g. pink garnets, occ. blue grey qtz 'eye';										
42.3	HORNFELS: dark grey to greenish, f.g., fair banding w 25-30, minor scotid Ph. w occ. Cpy										
45.3	BIOTIC QTZ EYE SCHIST: med. grey, f.g., m.g. to c.g. blue grey qtz 'eyes' to 5%, excellent banding w 30, btm. chf. sharp w 25, barren,										
47.8	HORNFELS: dark grey w. greenish cast, f.g. to m.g., massive to fair banding w 30, barren										
56.0	END OF HOLE										

APPENDIX NO. 3 (3)

DIAMOND DRILL CORE LOG - SAMPLE RECORD

DEPTH	DIP	BEARING AST.
COLLAR	45°	N-40°-E

PROPERTY SAM GROUP CLAIM SAM #2 HOLE NO. R-81-04
 LATITUDE 10050.0-N STARTED 1981-06-06 CORE SIZE 80
 DEPARTURE 10032.3-E FINISHED 1981-06-07 SECTION 100450-N
 ELEVATION 993.4 m TOTAL LENGTH 35.0 m LOGGED BY Jay Murphy

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m						
0.0	CASING: stick up 0.8m, casing pulled											
5.4	HORNIFELS: dark green to med. grey green, f.g. to m.g., mainly massive to crudely banded @ 50-65, final 40cm strongly biotite w. patchy grey carb.											
8.2	25cm. qtz rich section, fair banding @ 45-50,											
9.3	lose bleb Plo & Py w. minor Cpy. in qtz carb str. to 1cm @ 25 & along fracture @ 60,											
10.1	QUARTZITE: medium grey, f.g., fairly uniform, well banded @ 55-65, barren, wkly. fractured appearance over first 30cm											
12.3	HORNIFELS: mainly dark green w. medium grey green granulitic bands, f.g. to m.g., massive to wkly banded @ 60, generally patchy, non uniform aspect, sulphides											
20.4	as noted.											

DIAMOND DRILL CORE LOG - SAMPLE RECORD

 PROPERTY SAN GROUP

 HOLE No. R-81-04

 SHEET No. 2 of 3

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m	Cu	Co	Ni	Au	Ag
12.3	<i>HOENFELS: (cont'd)</i>										
	<i>13.3-14.2 - m.g. granitic band,</i>										
	<i>appr. equal dark green</i>										
	<i>ferromags w. light grey felds,</i>										
	<i>approach. fine carb, barren</i>										
	<i>15.8-16.8 - granitic band similar</i>										
	<i>to above, only v. minor</i>										
	<i>carb. noted,</i>										
	<i>19.0 - 35 cm sulphide band w 25%</i>	<i>Fair Pho & Cpy</i>	<i>100</i>	<i>18.5</i>	<i>20.5</i>	<i>2.0</i>	<i>.03</i>				
	<i>Pho & minor Cpy</i>										
20.4	<i>Diorite Porphyry Dike: med. grey,</i>	<i>minor Pho & Py</i>	<i>171</i>	<i>20.5</i>	<i>22.5</i>	<i>2.0</i>	<i>.01</i>				
	<i>abund. m.g. white phenos.</i>										
	<i>of plagioclase in f.g. grey green</i>										
	<i>matrix, siliceous & banded w 55-60</i>	<i>COMPOSITE</i>	<i>41</i>					<i>Tr</i>	<i>.02</i>	<i>.004</i>	<i>.003</i>
	<i>at both contacts, scat'd irreg. carb.</i>										
	<i>strs, minor dissem. sulphides,</i>										
22.3	<i>HOENFELS: dark green to med. grey</i>	<i>Fair Pho & Py, wk Cpy</i>	<i>172</i>	<i>22.5</i>	<i>25.5</i>	<i>3.0</i>	<i>.12</i>				
	<i>green, f.g. to m.g. massive to</i>										
	<i>wkly banded w 60-65, fair Pho. in</i>	<i>Fair Pho, strong Py.</i>	<i>173</i>	<i>25.5</i>	<i>27.5</i>	<i>2.0</i>	<i>.02</i>				
	<i>restricted bands. & crse Py w grey carb.</i>										
	<i>strs, first 1.3 m soft, chloritic,</i>										
	<i>23.7 - slip w 1-1.5 cm white carb. str.</i>										
	<i>Follows core for 70 cm</i>										
	<i>31.0 - 33.0 - highly siliceous, well banded,</i>										
33.0	<i>pyritic carb. str.</i>										

DIAMOND DRILL CORE LOG — SAMPLE RECORD

PROPERTY SAM GROUP

HOLE No. R-81-04

SHEET No. 3 of 3

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m				
33.0	QUARTZITE: mod. to dark grey, P.g., well banded w 60-70, barren									
35.0	END OF HOLE									

APPENDIX NO. 4 (3)

DIAMOND DRILL CORE LOG - SAMPLE RECORD

DEPTH	DIP	BEARING AST.
COLLAR	45°	N-40°-E

PROPERTY SAM GROUP CLAIM SAM#? HOLE NO. R-81-05
 LATITUDE 9975.0-N STARTED 1981-06-08 CORE SIZE 80
 DEPARTURE 10051.7-E FINISHED 1981-06-09 SECTION 9975-N
 ELEVATION 1002.5 m TOTAL LENGTH 34.8 m LOGGED BY [Signature]

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m	Cu.	Co	Ni	Au	Ag	
0.0	CASING: stick up 0.5m, casing pulled.											
3.0	HORNIFELS: dark grey green to black, f.g. to m.g., massive to poorly banded w 60, 5-10% scat'd irreg. pinkish garnet bnds. & m.g. to f.g. xls, minor scat'd grey white carb. str. & blebs usually at variance to banding, fair to strong sulphides, mainly Phe, as noted, btm. ckt. sharp w 35,	wt. to fair scat'd Phe	174	4.5	7.5	3.0	.01					
4.0	irreg grey white qtz. following core for 30cm, find 20cm w 40-50	COMPOSITE fair to good Phe. w. Cpy	# 2	175	7.5	9.5	2.0	.05	Tr	.01	.004	.05
9.8	QUARTZ AUGEN GNEISS: med. grey, porphyroclastic w. c.g. to m.g. blue grey qtz. 'eyes' in f.g. biotite banded matrix; uniform, btm. ckt. sharp w 70, barren,											
13.4	HORNIFELS: black to dark grey to med. grey green,											
16.7	generally well banded w 60-80,											

APPENDIX NO. 5 (1)

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

 PROPERTY SAM GROUP

 HOLE No. R-81-05

 SHEET No. 2 of 3

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m	Cu	Co	Ni	Au	Ag
13.4	HORNFEELS (cont'd) includes strong Pho. mid w.	strong Pho. w. Cpy	176	13.5	16.5	3.0	.06				
	lesser irreg Cpy patches,	COMPOSITE	43					.01	Tr.	.004	.05
16.7	GRANULITE: med. grey green to dark green, mottled, m.g., massive, mainly barren, moderate fine carb. fairly uniform, fair Pho. w. scat'd, patchy Cpy over first 1.0m, btm. ch't. @ 50	Fair Pho. w. Cpy	177	16.5	18.0	1.5	.07				
23.4	HORNFEELS: quartzitic in part, dark green to dark grey, f.g., several conformable qtz. beds to 3cm, generally well banded @ 60-75, minor Py. in carb. along slips, b'tm ch't. @ 75,										
25.8	GRANULITE: medium grey, m.g., fair banding @ 65-70, uniform, barren,										
27.2	HORNFEELS: as for section 23.4-25.8										
28.7	DIOBASE DIKE: dark grey, m.g. to f.g., uniform, massive, barren, ch'ts. @ 60, abund. diatite,										
29.7											

APPENDIX NO. 5 (2)

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

PROPERTY SAN GROUP

HOLE No. R-81-05

SHEET No. 3 of 3

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m							
29.7	FELDSPAR-BIOTITE GNEISS: med grey f.g, laminations to 3mm, fairly uniform, barren, small drag fetts at 30.9, few scabid dark grey, m.g. equigranular garnetiferous(?) knobs truncating laminations												
34.8	END OF HOLE												

DIAMOND DRILL CORE LOG - SAMPLE RECORD

DEPTH	DIP	BEARING	AST.
COLLAR	90°	—	—

PROPERTY SAM GROUP CLAIM SAM #2 HOLE NO. R-81-06
 LATITUDE 9975.0-N STARTED 1981-06-09 CORE SIZE BC
 DEPARTURE 10050.1-E FINISHED 1981-06-10 SECTION 99+75-N
 ELEVATION 1002.5m TOTAL LENGTH 25.0m
 LOGGED BY [Signature]

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m
0.0	CASING: stick up 0.5m, casing pulled					
2.2	HORNFEELS: med grey green to dark green, scold f.g. pink garnets, wk to good banding @ 55; granulitic over final 50 cm. barren, btm. ctct @ 65					
10.7	QUARTZ AUGEN GNEISS: coarsely porphyroclastic w. prominent 'eyes' blue grey Qtz. in biotitic feldspathic matrix, fair banding @ 65-70, barren					
16.2	HORNFEELS: dark green to light creamy grey, v hard min. in poorly defined beds @ 65, ctcts @ 70-75					
17.2	QUARTZ AUGEN GNEISS: as previously described.					
21.7	HORNFEELS: med to dark green to creamy grey green as previously described, btm. ctct.					
23.1	sharp @ 60,					

DIAMOND DRILL CORE LOG -- SAMPLE RECORD

 PROPERTY SAM GROUP

 HOLE No. R-81-06

 SHEET No. 2 of 2

DEPTH	DESCRIPTION	MINERALIZATION	SAMPLE	FROM	TO	m								
23.1	DIORITE DIKE: dark grey, m.g. to f.g. massive, biotite, barren, btm. det broken @ 6.0,													
24.3	HORNFELS: as for section 21.7-23.1 fair banding @ 5.0, barren													
25.0	END OF HOLE													



KAMLOOPS RESEARCH & ASSAY LABORATORY LTD.

2095 WEST TRANS CANADA HIGHWAY — KAMLOOPS B.C.
V1S 1A7

PHONE: (604) 372-2784 — TELEX: 048-8320

CERTIFICATE OF ASSAY

**B.C. LICENSED ASSAYERS
GEOCHEMICAL ANALYSTS
METALLURGISTS**

TO Mr. Jay Murphy
1335 Todd Road
Kamloops, B.C. V2L 5B4

Certificate No. K-4097

Date June 8, 1981

I hereby certify that the following are the results of assays made by us upon the herein described _____ samples

Kral No.	Marked	Cu							
		percent							
1	092	.21							
2	093	.02							
3	094	.08							
4	095	.02							
5	096	TR							
6	097	.03							

NOTE:
Rejects retained three weeks.
Pulps retained three months
unless otherwise arranged.

Registered Assayer, Province of British Columbia

APPENDIX NO. 7 (1)



KAMLOOPS RESEARCH & ASSAY LABORATORY LTD.

2095 WEST TRANS CANADA HIGHWAY — KAMLOOPS B.C.
V1S 1A7

PHONE: (604) 372-2784 — TELEX: 048-8320

CERTIFICATE OF ASSAY

B.C. LICENSED ASSAYERS
GEOCHEMICAL ANALYSTS
METALLURGISTS

TO Mr. Jay Murphy
1335 Todd Road
Kamloops, B.C. V2L 5B4

Certificate No. K-4141


Date June 17, 1981

I hereby certify that the following are the results of assays made by us upon the herein described _____ samples:

Kral No.	Marked	GOLD	SILVER	Cu	Co	Ni				
		Ounces Per Ton	Ounces Per Ton	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1	098	.003		-						
2	099	.002		-						
3	100	-		.03						
4	171E	-		.01						
5	172E	-		.12						
6	173E	-		.02						
7	174E	-		.01						
8	175E	-		.05						
9	176E	-		.06						
10	177E	-		.07						
	<u>Composites</u>									
	1	.004	.03		TR	.02				
	2	.004	.05		TR	.01				
	3	.004	.05		.01	TR				

APPENDIX NO. 7 (2)

NOTE:
Rejects retained three weeks.
Pulps retained three months
unless otherwise arranged.



Registered Assayer, Province of British Columbia



KAMLOOPS RESEARCH & ASSAY LABORATORY LTD.

2095 WEST TRANS CANADA HIGHWAY — KAMLOOPS B.C.
V1S 1A7

PHONE: (604) 372-2784 — TELEX: 048-8320

CERTIFICATE OF ASSAY

B.C. LICENSED ASSAYERS
GEOCHEMICAL ANALYSTS
METALLURGISTS

TO Mr. Jay Murphy
1335 Todd Road
Kamloops, B.C. V2L 5B4

Certificate No. K-4302

Date July 31, 1981

I hereby certify that the following are the results of assays made by us upon the herein described _____ samples

Kral No.	Marked	GOLD	SILVER	Cu						
		Ounces Per Ton	Ounces Per Ton	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1	001	.005	.03	.12						
2	002	-	-	.39						
3	003	-	-	.14						
4	004	-	-	.12						
5	005	-	-	.14						
6	006	-	-	.14						

APPENDIX NO. 7 (3)

NOTE:
Rejects retained three weeks.
Pulps retained three months
unless otherwise arranged.

Registered Assayer, Province of British Columbia

**KAMLOOPS
RESEARCH & ASSAY
LABORATORY LTD.**

B.C. CERTIFIED ASSAYERS

 2095 WEST TRANS CANADA HIGHWAY — KAMLOOPS B.C.
 V1S 1A7
 PHONE: (604) 372-2784 — TELEX: 048-8320

 To Mr. Jay Murphy
1335 Todd Road
Kamloops, B.C.
V2L 5B4
Date: August 31, 1981File No.: K-4141
SEMI-QUANTATIVE SPECTROGRAPHIC ANALYSIS CERTIFICATE

Fe, Mg, Ca, Ti, Na, K, Si, Al and P reported in %: all other elements reported in ppm.

Element	Lower Detection Limit	Sample # 1	Sample #	Element	Lower Detection Limit	Sample# 1	Sample #
Au	10	N		Zr	10	70	
Ag	.5	N		B	10	15	
Cu	5	500		Ba	10	100	
Pb	10	20		Be	1	3	
Zn	200	N		La	20	N	
Mo	5	N		Nb	10	N	
Fe	0.05%	5.0		Sc	5	5	
W	50	N		Sr	100	500	
Ni	5	20		Y	10	N	
Co	10	50		Ca	0.05%	5.0	
Cr	20	50		Mg	0.02%	0.5	
Cd	20	N		Ti	.001%	0.15	
As	200	N		Na	.02%	1.0	
Sb	100	N		K	.5%	N	
Mn	10	3000		Si	1%	300	
V	10	100		Al	.5%	2.0	
Bi	10	N		P	.1%	N	
Sn	10	50					

N — Not detected

L — Detected but below limit of determination

G — Greater than value shown

This certificate refers to analysis performed by Specomp Services.
 Values expressed in these analyses may be considered accurate to within plus or minus 35 to 50% of the amount present.

Signed