

05/87

PROSPECTING REPORT

on the

GENESIS NORTH, GENESIS CENTRAL

GENESIS SOUTH CLAIM GROUPS

Genesis 1-18, 20 Claims

Kamloops Mining Division

NTS 92 I/11W and 92 I/14W

MINISTRY OF ENERGY, MINES  
AND PETROLEUM RESOURCES

Rec'd

AUG 7 1986

SUBJECT \_\_\_\_\_

FILE \_\_\_\_\_

VANCOUVER, B.C.

Latitude 50° 46' N - Longitude 121° 23' W

Property Centre

Owner/Operator  
SAMARKAND RESOURCES INC.  
302 - 119 West Pender Street  
Vancouver, B.C.  
V6B 1S5

FILMED

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

15,002

AUG 19 1986  
KAMLOOPS

Report Prepared By

QUEST CANADA EXPLORATION SERVICES INC.  
302 - 119 West Pender Street  
Vancouver, B.C.  
V6B 1S5

July 1986

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## 1. INTRODUCTION

The Genesis property is located approximately 200 km Northeast of Vancouver near the town of Cache Creek in South-central British Columbia.

The property covers rocks belonging to the Nicola Group. These rocks have the potential of hosting massive sulphide deposits of volcanogenic origin.

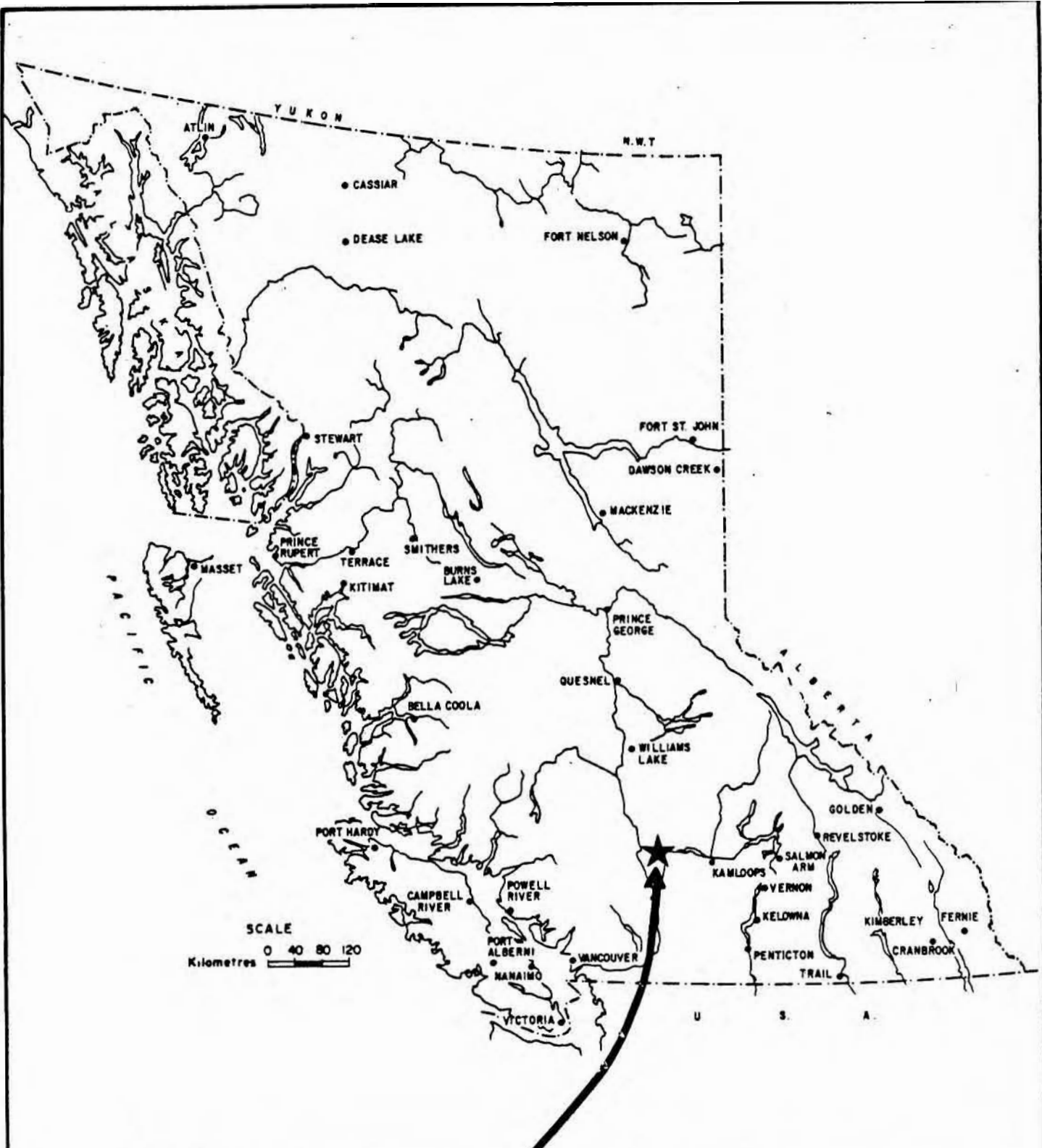
The prospecting program described in the following report was undertaken in order to assess the potential of the property for hosting exhalative volcanogenic massive sulphide deposits.

Recent exploration work on neighbouring claims located immediately south of the Genesis property have been conducted within the belt of Nicola volcanics that underlies the Genesis property. This work has been performed by major companies such as Esso Minerals Canada, Noranda Exploration Co., Bethlehem Copper Corp. and Selco Division of B.P. Resources Canada Limited.

## 2. SUMMARY AND CONCLUSIONS

The Genesis property is comprised of three claim groups namely the Genesis North Group (82 units), Genesis Central Group (84 units) and the Genesis South Group (95 units).

The property is centered 5 km west of the town of Cache Creek and extends 8 km north and 12 km south.



**GENESIS CLAIMS**

<i>Spirex Geoservices Ltd.</i>	
<b>GENESIS CLAIMS</b>	
<b>LOCATION MAP</b>	
KILOMETERS 0      100      200      300	
<i>Kamloops Mining Division</i>	
SCALE: 1: 8,000,000	DATE: <i>May 85</i>

*Figure 1*

Access to the claims is gained from several points along Highways 1, 12 and 91 by way of 2 wheel drive gravel roads.

The Genesis Property is underlain by a long, relatively narrow, north-northwesterly trending belt of submarine volcanics and sediments belonging to the Nicola Group. Rock types include basic to acidic volcanoclastics and flows with interclated argillic sediments.

The prospecting program described in this report was conducted over the entire 19 claim, 261 unit property. Prospecting plans were prepared at a scale of 1:10,000. Results of the program confirm the existance of rocks which are favourable hosts to volcanogenic massive sulphide deposits. A number of highly favourable areas were outlined and consequently 3 linecutting grids were established during early 1986 over some of these zones.

A comprehensive exploration program is recommended to further evaluate the Genesis Property.

PROPERTY

The Genesis Property consists of 19 contiguous mineral claims containing 261 units. The property is subdivided into 3 groups. Claim data is as follows:

<u>Claim Name</u>	<u>Record #</u>	<u>Units</u>	<u>Recording Date</u>
Genesis 1	6192	12	May 10, 1985
2	6193	15	May 10, 1985
3	6194	16	May 10, 1985
4	6195	16	May 10, 1985
5	6196	18	May 10, 1985
6	6197	18	May 10, 1985
7	6198	20	May 10, 1985
8	6199	20	May 10, 1985
9	6200	16	May 10, 1985
10	6201	16	May 10, 1985
11	6202	20	May 10, 1985
12	6203	20	May 10, 1985
13	6204	9	May 10, 1985
14	6205	12	May 10, 1985
15	6206	18	May 10, 1985
16	6207	1	May 10, 1985
17	6208	20	May 10, 1985
18	6209	1	May 10, 1985
20	6211	1	May 10, 1985

The Genesis South Group consists of the Genesis 1 - 6 claims.  
 The Genesis Central Group contains the Genesis 7 - 11 claims.  
 The Genesis North Group contains the Genesis 12 - 18 and  
 Genesis 20 claims.

The claims are owned and operated by Samarkand Resources Inc.  
 of 302 - 119 West Pender Street, Vancouver, B.C.

### LOCATION AND ACCESS

The centre of the property lies approximately 5 km west of Cache Creek at  $50^{\circ} 46'$  north latitude and  $121^{\circ} 23'$  west longitude. The southern property boundary is located approximately 3 km south of the Ashcroft Manor on highway #1. The northern property boundary is just south of highway 12 about 2 km west of Carquile on highway 97. The Genesis property extends for about 20 km north-northwest between these areas.

Access to the property is gained at several points along highways 1, 12 and 97 by way of 2 and 4 wheel drive range roads. (See figure 2).

### PHYSIOGRAPHY AND VEGETATION

Relief is gentle to moderate with elevations ranging from 1500 to 4500 feet above sea level.

The climate is semi-arid with annual rainfall varying from 11 to 14 inches. Temperatures vary from up to  $40^{\circ}\text{C}$  in summer to as low as  $-35^{\circ}\text{C}$  in winter.

The vegetation consists of grasslands, sage brush and cactus at lower elevations with increasing amounts of pine and fir at higher elevations.

Rock outcrop is limited to slopes and valleys.

## REGIONAL GEOLOGY

The Genesis claims lie within a north-northwest trending belt of Triassic volcanic and sedimentary rocks belonging to the Nicola Group (Figure 2). Rock types include basic to acidic volcanoclastics and flows with intercalated argillite and their metamorphic equivalents. The belt is bounded on the east unconformably by sediments of the Ashcroft Formation, which consists of argillite, siltstone, sandstone and conglomerate. A fault contact with the Permian Cache Creek Complex and with unnamed Cretaceous sediments forms the western boundary of the belt. The Cretaceous sediments consist of conglomerate, sandstone and minor shale with coal horizons. The Cache Creek Complex consists of basalt, pillow basalt, diabase and gabbro intrusions, massive carbonate with argillite and tuffaceous interbeds, (the Marble Canyon Formation), and local basalt and chert sequences with small bodies of ultramafic rock.

## REGIONAL EXPLORATION HISTORY

The first major survey of the Ashcroft area was made by S. Duffell and K.C. McTaggart as shown in the G.S.C. Memoir No. 262 (1952).

Several studies, (Ladd 1977, 79) and (Travers 1978), were conducted in the late seventies. The second major publication was compiled by J.W.H. Monger, G.S.C. 1980 - 82, and W.S. McMillan, B.C.M.M.P.R. 1969 - 75 and 1977 - 80. The results of this work are presented in the G.S.C. open file 980.



The area was subject to exploration activity in the 1960's and early 1970's by major mining companies and Vancouver juniors. Exploration targets were porphyry copper deposits.

Most of the recent work has been south of Cache Creek near Red Hill. Noranda Exploration Co., Bethlehem Copper Corp. and Guichon Explorco Limited are some of the companies who have worked on the gossan zones at Red Hill. Recent studies by D. Gamble (1980 - 81) have recognized the potential for volcanogenic stratabound sulphide deposits within the Nicola Group near Red Hill. The Selco Division of B.P. Canada Limited is now actively exploring this area.

Geochemical and geophysical work has been conducted on the ground west of Cache Creek by Vancouver juniors in the early seventies. Results reported included gold, copper, zinc and lead anomalies (assessment reports 3153, 4068 and 9177).

#### PROPERTY EXPLORATION HISTORY

The area covered by the Genesis property has received very little previous exploration. There are two government assessment reports documenting past exploration programs.

Report No. 3153 written by C.A. Lannle, P.Eng. in 1971 describes a soil geochemical survey for Cu, Pb and Zn and a magnetometer survey conducted on the McLean Claim group. Results of this program show a strong zinc anomaly with weak lead association stretching for over 600 m. The cause of this anomaly was never adequately explained.

Report No. 4068 prepared by G.B. Phelps, P.Eng. in 1972 describes a Cu soil geochemical survey conducted on the Ham and Eggs claim group. Results show a moderate copper geochemical anomaly trending north-northeast approximately 1 km. However, the location map from the assessment report does not provide enough information to adequately correlate this anomaly to know topography in the area. It appears that the anomaly lies in the western portion of the Genesis North group possibly within the Genesis 13 and 15 claims.

#### PROPERTY GEOLOGY AND PROSPECTING SURVEY

The prospecting survey was conducted between August 20th and September 1, 1985. The survey was conducted by 3 geologists and one assistant. A total of 28 man days of prospecting were conducted over the Genesis property. All claims within the 3 Genesis Groups were covered. Control was provided using hip chain and compass tied into known topographical features. Approximately 140 km of traverse line was covered. Results of the survey are presented in figures 3,4,5 located in the map pocket of this report.

#### GENESIS SOUTH GROUP

The Genesis South Group is underlain mostly by felsic volcanics and associated sediments belonging to the Nicola Group. Rock samples collected from outcrops within the Genesis 4 and 5 claims showed anomalies of copper, silver values and  $\text{Na}_2\text{O}$  depletion. Refer to appendix for a description of rock samples and appendix 3 for whole rock geochemical analysis of selected samples. Generally

where outcrop is encountered on these two claims, it is rhyolite breccias, tuffs, flows and quartz feldspar porphyry. A relatively undeformed granodiorite intrusion was delineated on the Genesis 2 claim and extends into the Genesis 3. The undeformed nature of this intrusion suggests that it was emplaced more recently than the acidic volcanics.

Two rock samples collected from the Genesis 5 claim show very interesting anomalous geochemical values. Sample PC 9 is a highly silicified volcanic containing 2.3% chalcopyrite. The sample is depleted in sodium (0.05%  $\text{Na}_2\text{O}$ ) and anomalous in Cu (1750 ppm) and Ag (1.7 ppm Ag). Sample PO 9 collected about 200 m south of PC 9 is an altered chert breccia with anomalous gold and silver values (46 ppb Au and 2 ppm Ag).

Several samples collected from Lone Tree Creek on the Genesis 4 claim are also anomalous in copper and depleted in sodium. Samples R 24, 25, 26 are all rhyolites. R 24 is a rhyolite sulphide breccia with geochemical values of 450 ppm Cu, 1.3 ppm Ag and 1.8%  $\text{Na}_2\text{O}$ . R 26, a rhyolite porphyry, returned a value of 475 ppm Cu and 1.1 ppm Ag. R 26 analyzed at 375 ppm Cu and 1.86%  $\text{Na}_2\text{O}$ . These samples were collected within 400 m of each other in a creek gully. They represent a highly pyritized zone of rhyolite. The mineralization is syngenetic in nature.

A number of samples collected along Cornwall Creek on Genesis 6 consisted of chert and chert breccia.

The eastern portion of Genesis 5 contains an ultramafic pod situated between quartz feldspar porphyry of the Nicola Group and mafic volcanics of the Cache Creek group. The

area in and around the ultramafic is a possible site for gold deposition.

The Genesis Central Group is largely overburden covered. No outcrop was encountered on the Genesis 7, 8, 9 and 10 claims. However, the prospecting traverses conducted during the program were widely spaced and the possibility of locating bedrock exposures on these claims with more detailed exploration does exist. Genesis 11, the northern most claim in the group is predominately underlain by quartz feldspar porphyry. A wedge of mafic volcanic occurs in the north-eastern portion of the claim. This claim also contains a strong zinc soil geochemical anomaly delineated during a previous exploration program during 1971.

The Eastern portion of the Genesis North Group covers volcanics and related sediments of the Cache Creek Group. Most of the claim group covers quartz feldspar porphyry with interbedded mafic volcanic tuffs and flows and minor limestone blocks. Again rock exposure is limited. However, the rocks encountered during the prospecting survey suggest a good environment for exhalative sulphide deposits.

### DISCUSSION

The prospecting survey shows that the majority of the Genesis property is underlain by acidic volcanics with interbedded mafic volcanics and minor sediments.

Three areas within the property are considered prime targets for further exploration. The first area located on the Genesis 4 claim in the South Claim group covers strongly pyritized

rhyolite tuffs and breccias. These rocks are exposed in the banks of Lone Tree Creek. Whole rock I.C.P. analysis shows these rocks to be anomalous in copper and silver with a moderately depleted sodium content.

The second area is situated on the Genesis 5 about 1.7 km north of the first area. This area is also anomalous in copper and silver and depleted in sodium. Rocks are rhyolite breccia and altered silicified volcanic (original composition indistinguishable).

Further exploration in the vicinity of these targets should consist of geophysical surveying to delineate structure and any possible sulphide zones, geochemical surveying (both rock and soils), detailed geological mapping and prospecting.

The third area is located on the Genesis 2 claim in the Central claim group. This area is underlain by quartz feldspar porphyry rocks. A soil geochemical zinc anomaly delineated by previous workers (1971) trends north-northwest for 600 m and is open at both ends. This anomaly represents a good exploration target located in a favourable geological environment. This area should receive geophysical surveying and detailed geological mapping.

Further exploration in areas of limited rock exposure might best be accomplished through an airborne geophysical survey. This would define geological structure and provide definite targets for follow-up exploration.

## CONCLUSIONS AND RECOMMENDATIONS


The Genesis Property is largely underlain by rocks which have excellent potential for hosting volcanogenic exhalative massive sulphide deposits.

Several areas that are considered prime targets for future exploration have been outlined.

It is recommended that a grid be established over these areas to provide control for future ground surveys ( a portion of the required grids have already been established). Detailed geological mapping should be conducted over these grids. Geophysical surveying consisting of proton magnetometer, VLF-EM and possibly horizontal-loop EM should be conducted as well as soil and rock geochemical surveying.

If the above surveys delineate favourable targets then trenching and diamond drilling would follow.

For those areas of the Genesis property where rock exposure is poor an airborne input electromagnetic survey and a coincident proton magnetometer survey should be conducted, provided financing could be arranged.

  
\_\_\_\_\_  
Ralph Shearing, P.Geol.

LIST OF REFERENCES

Monger, J.W.H. and  
McMillan, W.J. (1983)

"Bedrock Geology of Ashcroft  
(92 I) Map Area"  
G.S.C. O.F. 980

Duffell, S. and  
McTaggart, K.C. (1952)

"Ashcroft Map - Area, British  
Columbia"  
G.S.C. Memoir No. 262

Kamloops Mining Division  
Assessment Report

#8892 - Guichon Explorco Limited  
#9415 - Explorco Limited  
#3153 - Adera Mining Limited  
#4068 - Milestone Mines Ltd.  
(N.P.L.)  
#9177 - Cominco Ltd.

A P P E N D I X 1

Statement of Costs



STATEMENT OF COSTS

Prospecting Only

PERSONNEL

Field Program

P. Chung	7 days @ \$200.00	\$ 1,400.00
J. Pardy	7 days @ \$200.00	1,400.00
R. Shearing	7 days @ \$200.00	1,400.00
J. McLennon	7 days @ \$150.00	1,050.00

Transportation

2 vehicles @ \$45.00/day - 7 days	630.00
5250 km @ \$0.30/km	1,575.00
Fuel	470.00

Lodging

7 nights (camping charge)	100.00
7 nights trailer rental @ \$40.00/night	280.00
7 nights - 2 tents @ \$15.00/tent	210.00

Meals

28 man days @ \$25.00/man day	700.00
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Field Equipment Rental

- compasses, clinometers, axes, etc.	100.00
- power saw @ \$10.00/day	70.00

Field Supplies

20 rolls flagging @ \$1.50	30.00
50 rolls tape thread @ \$3.50/roll	175.00
80 plastic sample bags \$0.30/bag	24.00
propane	25.00

Analysis

25 major ICP @ \$25.00/sample	625.00
14 rock geochem pulp @ \$2.00	28.00
Data Plotting Geologist - 2 days @ \$200.00/day	400.00

Drafting

35 hours @ \$20.00/hour 700.00

Report Preparation

Geologist - 6 days @ \$200.00/day 1,200.00

Report Typing & Compilation

10 hours @ \$20.00/hour 200.00

Reproduction

Report photocopies 30.00

Map reproduction 25.00

Miscellaneous supplies & materials 100.00

\$12,947.00

COST APPORTIONED

Genesis South Group \$ 4,600.00

Genesis Central Group 4,247.00

Genesis North Group 4,100.00

Linecutting


Genesis South Group  
19 km linecutting @ \$320.00/km \$ 6,080.00

Genesis Central Group  
18 km linecutting @ \$320.00/km 5,760.00

Genesis North Group  
18 km linecutting @ \$320.00/km 5,760.00

Total Linecutting \$17,600.00

On behalf of Quest Canada Exploration Services Inc., I certify that the above costs were incurred while conducting exploration on the Genesis Property during August-September, 1985 and April-May, 1986.

  
\_\_\_\_\_  
Ralph Shearing, P.Geol.


A P P E N D I X 2

Statement of Qualifications

## STATEMENT OF QUALIFICATIONS

I, Ralph Shearing, of 3433 West 12th Avenue, Vancouver, B.C., V6R 2N2, DO HEREBY CERTIFY THAT:

1. I am President of Quest Canada Exploration Services Inc., a geological consulting and services company, with business office at 302 - 119 West Pender Street, Vancouver, B.C.
2. I am a graduate of the University of British Columbia with a degree of B.Sc., Geology, 1981.
3. I have been active in mineral exploration since 1979 as follows:
  - a) 1979 - Summer employee with St. Joseph Explorations Limited; Pb, Zn, Au, Ag and U exploration in the Yukon and British Columbia.
  - b) 1980 - Summer employee with Sulpetro Minerals Limited; Pb, Zn, Au, Ag and U exploration in the Yukon and northern British Columbia.
  - c) 1981 - 1982 - Permanent employee with Sulpetro Minerals Limited; Pb, Zn, Au and Ag exploration in the Yukon and northern British Columbia. Geological and geophysical exploration for Au, Ag, Cu, Pb and Zn in northwestern Quebec and northern Ontario. Geophysical exploration provided significant experience in conducting the following geophysical surveys, as well as in the application of the resultant data: VLF-Electromagnetic, Horizontal Loop Electromagnetic, Proton Magnetometer, Induced Polarization and Gravity.
  - d) 1983 - Present - Independent consulting geologist with Quest Canada Exploration Services Inc. Geological and geophysical exploration for Au, Ag, Pb and Zn in central British Columbia.
4. I supervised the exploration program conducted during August and September on the Genesis Property.

  
Ralph Shearing, B.Sc., P.Geol.  
Consulting Geologist

Dated this 5<sup>th</sup> day of August, 1986 at Vancouver, B.C.

I, Paul P.L. Chung, of the City of Richmond, Province of British Columbia, DO HEREBY CERTIFY THAT:

1. I am a Consulting Geologist with business address office at Suite 302 - 119 West Pender Street, Vancouver, British Columbia, V6B 1S5; and President of Boa Services Ltd.
2. I am a graduate in geology with a Bachelor of Science (Major: Geology) degree from the University of British Columbia, in 1981.
3. I have practised my profession for the past five years.

Pre-graduate experience in Geology, Geochemistry, Geophysics in British Columbia and Yukon (1979-1980).

Two years as Exploration Geologist with Sulpetro Minerals Limited conducting geological and geophysical (VLF-EM, magnetometer, I.P. gravity, H.L.E.M.) programs in British Columbia, Yukon, Ontario, Quebec and Nova Scotia. (1981-1982).

Three years as Consulting Geologist with Boa Services Ltd. Active geological and geophysical exploration in British Columbia, Yukon and Western United States.

4. I conducted Prospecting on the Genesis Property between August 20 and September 1, 1985.

Paul P.L. Chung  
Consulting Geologist

Dated at Vancouver, British Columbia, this    day of  
February, 1986.

STATEMENT OF QUALIFICATIONS

I, James W. Pardy, of 102 - 15158 Royal Avenue, White Rock, B.C., V4B 1M3, Do Hereby Certify that:

1. I am a graduate of the University of British Columbia with a degree of B.Sc., Geology, 1982.
2. I have been active in mineral exploration since 1979 in geological and geophysical surveys as follows;
  - a) 1979 - summer employee with Minitoba Mineral Resources, assistant on mapping programs.
  - b) 1980 - summer employee with Bethlehem Copper Corporation. Cu, Mo exploration in B.C.
  - c) 1981 - summer employee with Prism Resources Ltd. Zn, Pb, Au, Ag, Cu exploration in B.C.
  - d) 1984 - Present - geologist with Spirex Geoservices Ltd. Geological and Geophysical exploration for Au, Ag, Pt, and Zn in central B.C.
3. I conducted prospecting on the Genesis Property between August 20 - September 1, 1985.

Dated this 5 th day of August, 1986 at Vancouver, B.C.

  
\_\_\_\_\_  
James W. Pardy, B.Sc. (Geol.)

A P P E N D I X 3

Rock Geochemical ICP Results

(VALUES IN % )	CU-PPM	ZN-PPM	AU-PPB
R4	27	35	1
R13	18	46	5
R18	16	90	7
R21	11	13	5
R22	9	37	4
R24	<u>450</u>	34	2
R25	<u>475</u>	27	2
R26	<u>375</u>	23	2
R27	14	33	3
R17	15	48	5
P9	35	67	46
P11	23	15	4
P8	30	71	3
PC9	<u>1750</u>	26	1

(VALUES IN % )	AL2O3	BA	CAO	FE2O3	K2O	MGO	MNO2	NA2O	PB	SI02	TIO2	ZR
R4	12.52	.046	1.99	2.62	3.01	.74	.09	1.45	.015	69.27	.30	.013
R13	4.94	.005	45.60	3.24	.48	.67	.06	.05	.005	16.58	.30	.005
R18	2.56	.005	49.10	.86	.16	.79	.27	.95	.005	12.01	.05	.005
R21	10.46	.097	.86	3.09	.10	.31	.01	5.86	.005	76.74	.14	.005
R22	11.46	.005	1.45	2.00	.15	1.01	.07	5.61	.006	65.18	.16	.005
R24	19.06	.024	7.05	<u>16.75</u>	1.70	3.57	.05	<u>1.84</u>	.025	<u>47.11</u>	.48	.005
R25	21.17	.045	3.50	14.62	3.14	2.73	.06	4.07	.024	48.56	.53	.005
R26	13.28	.055	2.81	8.83	1.99	2.66	.04	<u>1.86</u>	.013	<u>66.89</u>	.43	.005
R27	12.66	.010	.24	2.82	.40	.52	.05	6.93	.013	68.46	.27	.005
R17	15.50	.069	2.72	5.04	3.51	1.55	.04	3.01	.017	66.46	.56	.005
P9	15.07	.102	2.92	9.00	.81	1.74	.06	4.69	.018	63.29	1.03	.005
P11	.88	.005	.74	7.71	.02	26.21	.17	.03	.025	34.43	.01	.005
P8	10.82	.015	7.87	3.47	.78	1.53	.15	3.91	.007	61.33	.45	.005
PC9	13.29	.005	14.55	8.40	.03	1.01	.20	.05	.011	60.20	.62	.005



**MIN-EN Laboratories Ltd.**

*Specialists in Mineral Environments*

705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE: (604)980-5814 OR (604)988-4524

TELEX: 04-352828

GEOCHEMICAL ANALYSIS CERTIFICATE

COMPANY: SPIREX GEOSERVICES LTD.

FILE: 5-600R

PROJECT:

DATE: SEPT. 19/85.

ATTENTION:

TYPE: PULP GEOCHEM

*We hereby certify that the following are the results of the geochemical analysis made on 14 samples submitted.*

SAMPLE NUMBER	AG PPM
R4	0.4
R13	2.9
R18	3.1
R21	0.2
R22	<u>0.3</u>
R24	1.3
R25	1.1
R26	0.8
R27	0.4
R17	1.3
I	2.0
P11	0.9
P8	1.0
PC9	1.7

Certified by

REPORT #2000

PAGE 1  
 PRINTED 20-MAR-86  
 09:24:14

SAMPLE ID # AB13431

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 26002      FIELD NUMBER : 85982DM424      PROJECT # 982  
 TOWNSHIP :              LOT : 0 CONCESSION :      PROVINCE : BRITISH COLUMBIA  
 NTS : 092111              PROJECT : B.C. MASSIVE SULPHIDES  
 UTM ZONE : 10              GRID COORDINATES : E : 615225.0 N : 5619125.0 EL : 712.0  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NAME : VOLCANIC,FELSIC,FINE,FELDSPAR PORPHYRITIC,MASSIVE ,LOOK AT COMMENTS.  
 FINAL NAME :  
 ALTERATION : UNKNOWN ,LOOK AT COMMENTS,LOOK AT COMMENTS.  
 MINERALIZATION : DISSEMINATED AND BLEBS,<1% ,PYRITE.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : XRAL

DATE : 04-OCT-85  
 DATE : 06-NOV-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

	WT %	NORMALIZED		NORMS	CLASSIFICATIONS AND INDICES							
		ANHYDROUS WT %	ANHYDROUS CATION %									
SI02	77.50	79.11	72.93	Q	34.74	NA20+K20	6.70	SI02	79.11	SUBALKALINE		
AL203	10.60	10.82	11.76	C	0.00	OL*	0.13	NE*	37.49	Q*	62.38	SUBALKALINE
FE203	0.67	0.68	0.47	OR	0.66	CPX	96.87	OL	0.00	OPX	3.13	ALKALINE
FE0	0.00	0.00	0.00	AB	58.13	A	80.66	F	7.41	M	11.93	CALC-ALKALINE
CA0	1.32	1.35	1.33	AN	0.00	AL203	10.82	NORM	PLAG	0.00		THOLEITIC
MGO	0.97	0.99	1.36	LC	0.00	AN	0.00	AB*	98.88	OR	1.12	K-POOR SERIES
NA20	6.45	6.58	11.77	NE	0.00	CI	5.61	NORM	PLAG	0.00		RHYOLITE
K20	0.11	0.11	0.13	KP	0.00	JENSEN CALC-ALKALINE RHYOLITE						
TI02	0.30	0.31	0.21	AC	0.57	AL	85.17	FE	4.98	MG	9.85	
P205	0.04	0.04	0.03	DI	5.11	COLOR INDEX : 5.61						
MNO	0.00	0.00	0.00	HE	0.00	HASHIMOTO INDEX : 12.20						
S	0.00	0.00	0.00	EN	0.17							
NIO	0.00	0.00	0.00	FS	0.00							
CR203	0.00	0.00	0.00	FO	0.00							
CO2	0.00	0.00	0.00	FA	0.00							
H20+	0.00	0.00	0.00	WO	0.00							
H20-	0.00	0.00	0.00	LN	0.00							
LOI	2.16	0.00	0.00	MT	0.00							
TOTAL	97.96	100.00	100.00	IL	0.00							
				CR	0.00							
				HM	0.33							
				AP	0.09							
				PO	0.00							
				NS	0.00							
				KS	0.00							
				RU	0.21							
				AG	0.00							
				OL	0.00							
				OPX	0.17							
				CPX	5.11							
				AB*	58.13							

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

RB	10.00:SR	50.00:Y	30.00:ZR	80.00:NB	10.00:BA	80.00:AU	-10.00:LI	-10.00:BE	-10.00:
B	50.00:SC	7.90:V	-10.00:CR	5.00:MN	140.00:CO	2.00:NI	7.00:CU	2.50:ZN	15.00:
GE	-10.00:AS	-2.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:CD	-0.20:SB	0.20:CS	-2.40:
LA	3.40:CE	10.00:ND	7.00:SM	2.60:EU	0.40:YB	3.70:LU	0.57:HF	3.00:TA	-1.00:
W	-3.00:PB	10.00:BI	-0.50:TH	0.60:U	0.70:				

COMMENTS : LONE TREE CREEK. MASSIVE CREAM-WHITE. EXTREMELY SILICEOUS, CHERTY RHYOLITE, LIKELY A SUBVOLCANIC INTRUSION. FRESH SURFACE DISPLAYS POSSIBLE SUBTLE WHITE ANHEDRAL FELDSPAR PHENOCRYSTS (2 MM., <7%). MINOR PY DISSEMS. IN LOCALIZED AREAS.

REPORT #2000

PAGE 1  
 PRINTED 20-MAR-86  
 09:25:19

SAMPLE ID # AB13432

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 26002  
 TOWNSHIP :  
 NTS : 092111  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NUMBER : 85982DM425  
 LOT : 0 CONCESSION :

PROJECT # 982  
 PROVINCE : BRITISH COLUMBIA  
 PROJECT : B.C. MASSIVE SULPHIDES  
 GRID COORDINATES : E : 615225.0 N : 5619125.0 EL : 712.0

FIELD NAME : VOLCANIC,MAFIC ,FINE,FELDSPAR PORPHYRITIC,MASSIVE ,LOOK AT COMMENTS.  
 FINAL NAME :  
 ALTERATION : METAMORPHOSED ,LOOK AT COMMENTS,LOOK AT COMMENTS.  
 MINERALIZATION : DISSEMINATED AND BLEBS,<1% ,CHALCOPYRITE.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : XRAL

DATE : 04-OCT-85  
 DATE : 06-NOV-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

	WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %	NORMS
SI02	53.50	55.40	50.12	Q 0.00
AL203	18.50	19.16	20.43	C 3.52
FE203	9.52	3.20	2.18	OR 0.60
FEO	0.00	5.99	4.53	AB 66.38
CAO	2.13	2.21	2.14	AN 8.77
MGO	4.10	4.25	5.72	LC 0.00
NA2O	7.31	7.57	13.28	NE 0.00
K2O	0.10	0.10	0.12	KP 0.00
TIO2	1.59	1.65	1.12	AC 0.00
P2O5	0.29	0.30	0.23	DI 0.00
MNO	0.17	0.18	0.13	HE 0.00
S	0.00	0.00	0.00	EN 6.53
NIO	0.00	0.00	0.00	FS 2.80
CR2O3	0.00	0.00	0.00	FO 3.69
CO2	0.00	0.00	0.00	FA 1.59
H2O+	0.00	0.00	0.00	WO 0.00
H2O-	0.00	0.00	0.00	LN 0.00
LOI	3.16	0.00	0.00	MT 3.27
TOTAL	96.57	100.00	100.00	IL 2.24
				CR 0.00
				HM 0.00
				AP 0.61
				PO 0.00
				NS 0.00
				KS 0.00
				RU 0.00
				AG 0.00
				OL 5.28
				OPX 9.33
				CPX 0.00
				AB* 66.38

CLASSIFICATIONS AND INDICES					
NA2O+K2O	7.67	SI02	55.40	ALKALINE	
OL*	15.16	NE*	49.18	Q*	35.67
CPX	0.00	OL	36.14	OPX	63.86
A	36.91	F	42.67	M	20.42
AL203	19.16	NORM	PLAG	11.67	CALC-ALKALINE
AN	11.58	AB*	87.63	OR	0.79
CI	20.11	NORM	PLAG	11.67	MUGEARITE
JENSEN CALC-ALKALINE BASALT					
AL	59.87	FE	23.35	MG	16.78
COLOR INDEX : 20.11					
HASHIMOTO INDEX : 30.79					

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

RB	10.00:SR	80.00:Y	30.00:ZR	100.00:NB	10.00:BA	110.00:AU	-10.00:LI	-10.00:BE	-10.00:
B	20.00:SC	46.40:V	150.00:CR	9.00:MN	0.00:CO	33.00:NI	10.00:CU	35.00:ZN	140.00:
GE	-10.00:AS	2.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:CD	-0.20:SB	3.10:CS	-3.20:
LA	7.90:CE	24.00:ND	11.00:SM	4.50:EU	0.90:YB	3.70:LU	0.57:HF	3.00:TA	-1.00:
W	-3.00:PB	14.00:BI	-0.50:TH	1.30:U	-0.50:				

COMMENTS : LONE TREE CREEK. MASSIVE, MED. GREEN, FINE TO MED. GRAINED BASALTIC-ANDESITE. RARE, SUBHEDRAL TO EUHEDRAL PLAGIOCLASE PHENOCRYSTS (1 X 2 MM., <1%). WHITE, MASSIVE, IRREG. ORIENTED QTZ. VEINS (3 CM.) WITH BLEBS OF CPY & MALACHITE LOCALLY

REPORT #2000

PAGE 1  
 PRINTED 20-MAR-86  
 09:26:24

SAMPLE ID # AB13433

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 26002  
 TOWNSHIP :  
 NTS : 092111  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NUMBER : 85982DM427  
 LOT : 0 CONCESSION :  
 GRID COORDINATES : E : 614850.0 N : 5619460.0 EL : 767.0

PROJECT # 982  
 PROVINCE : BRITISH COLUMBIA  
 PROJECT : B.C. MASSIVE SULPHIDES

FIELD NAME : VOLCANICLASTIC, INTERMEDIATE, ASH, FELDSPAR PORPHYRITIC, TECTONIZED, NO COMMENT.  
 FINAL NAME :  
 ALTERATION : UNKNOWN , LOOK AT COMMENTS, LOOK AT COMMENTS.  
 MINERALIZATION : NIL , NIL , NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : XRAL

DATE : 04-OCT-85  
 DATE : 06-NOV-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

	WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %	NORMS	CLASSIFICATIONS AND INDICES
SI02	70.00	73.14	68.77	Q 34.35	NA2O+K2O 5.02 SI02 73.14 SUBALKALINE
AL2O3	11.60	12.12	13.43	C 0.00	
FE2O3	3.61	1.92	1.36	OR 7.28	OL* 2.88 NE* 28.98 Q* 68.14 SUBALKALINE
FEO	0.00	1.66	1.31	AB 34.67	
CAO	3.82	3.99	4.02	AN 12.61	CPX 67.28 OL 0.00 OPX 32.72 ALKALINE
MGO	1.65	1.72	2.42	LC 0.00	
NA2O	3.64	3.80	6.93	NE 0.00	A 49.49 F 33.49 M 17.01 THOLEITIC
K2O	1.16	1.21	1.46	KP 0.00	
TI02	0.34	0.36	0.25	AC 0.00	AL2O3 12.12 NORM PLAG 26.68 THOLEITIC
P2O5	0.06	0.06	0.05	DI 4.90	
MNO	0.00	0.00	0.00	HE 0.76	AN 23.12 AB* 63.54 OR 13.34 AVERAGE SERIES
S	0.00	0.00	0.00	EN 2.38	
NIO	0.00	0.00	0.00	FS 0.37	CI 10.96 NORM PLAG 26.68 DACITE
CR2O3	0.00	0.00	0.00	FO 0.00	
CO2	0.00	0.00	0.00	FA 0.00	
H2O+	0.00	0.00	0.00	WO 0.00	JENSEN CALC-ALKALINE DACITE
H2O-	0.00	0.00	0.00	LN 0.00	AL 71.57 FE 15.56 MG 12.87
LOI	4.31	0.00	0.00	MT 2.04	
TOTAL	95.70	100.00	100.00	IL 0.50	COLOR INDEX : 10.96
				CR 0.00	HASHIMOTO INDEX : 27.36
				HM 0.00	
				AP 0.13	
				PO 0.00	
				NS 0.00	
				KS 0.00	
				RU 0.00	
				AG 0.00	
				OL 0.00	
				OPX 2.75	
				CPX 5.66	
				AB* 34.67	

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

RB	30.00:SR	90.00:Y	20.00:ZR	50.00:NB	10.00:BA	260.00:AU	10.00:LI	-10.00:BE	-10.00:
B	40.00:SC	19.00:V	60.00:CR	4.00:MN	730.00:CO	8.00:NI	5.00:CU	11.00:ZN	73.00:
GE	10.00:AS	3.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:CD	-0.20:SB	0.30:CS	-2.10:
LA	3.70:CE	12.00:ND	5.00:SM	2.40:EU	-0.40:YB	3.40:LU	0.52:HF	2.00:TA	-1.00:
W	-3.00:PB	14.00:BI	-0.50:TH	0.50:U	0.60:				

COMMENTS : LONE TREE CREEK. FINE GRAINED, PALE GREEN, SLIGHTLY FOLIATED, INTERMED. COMP. FELDSPAR CRYSTAL 'TUFF'? COMPOSED MOSTLY OF QTZ.-SERICITE. ROCK IS SLIGHTLY TO MODERATELY CALCAREOUS.

REPORT #2000

PAGE 1  
 PRINTED 20-MAR-86  
 09:27:30

SAMPLE ID # AB13434

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 26002      FIELD NUMBER : 85982DM428      PROJECT # 982  
 TOWNSHIP :              LOT : 0 CONCESSION :      PROVINCE : BRITISH COLUMBIA  
 NTS : 092I11              GRID COORDINATES : E : 614800.0 N : 5619475.0 EL : 762.0  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NAME : VOLCANICLASTIC, INTERMEDIATE, ASH, FIAMME BEARING, MASSIVE, MAFIC PORPHYRITIC.  
 FINAL NAME :  
 ALTERATION : METAMORPHOSED, CHLORITIZATION, MODERATE.  
 MINERALIZATION : NIL, NIL, NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : XRAL

DATE : 04-OCT-85  
 DATE : 06-NOV-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %	NORMS	CLASSIFICATIONS AND INDICES
SI02	50.50	53.97	49.40	Q 1.75
AL203	16.80	17.95	19.37	C 1.23
FE203	9.76	2.20	1.52	OR 0.19
FEO	0.00	7.40	5.67	AB 35.18
CAO	5.37	5.74	5.63	AN 27.66
MGO	7.35	7.86	10.72	LC 0.00
NA2O	3.71	3.97	7.04	NE 0.00
K2O	0.03	0.03	0.04	KP 0.00
TI02	0.56	0.60	0.41	AC 0.00
P205	0.07	0.07	0.06	DI 0.00
MNO	0.19	0.20	0.16	HE 0.00
S	0.00	0.00	0.00	EN 21.43
NI0	0.00	0.00	0.00	FS 9.31
CR203	0.00	0.00	0.00	FO 0.00
CO2	0.00	0.00	0.00	FA 0.00
H2O+	0.00	0.00	0.00	WO 0.00
H2O-	0.00	0.00	0.00	LN 0.00
LOI	6.16	0.00	0.00	MT 2.27
TOTAL	93.57	100.00	100.00	IL 0.82
				CR 0.00
				HM 0.00
				AP 0.15
				PO 0.00
				NS 0.00
				KS 0.00
				RU 0.00
				AG 0.00
				OL 0.00
				OPX 30.74
				CPX 0.00
				AB* 35.18
				NA2O+K2O 4.00
				SI02 53.97
				SUBALKALINE
				OL* 34.07
				NE* 31.19
				Q* 34.73
				SUBALKALINE
				CPX 0.00
				OL 0.00
				OPX 100.00
				SUBALKALINE
				A 18.82
				F 44.19
				M 36.99
				THOLEITIC
				AL203 17.95
				NORM PLAG 44.02
				CALC-ALKALINE
				AN 43.89
				AB* 55.82
				OR 0.30
				K-POOR SERIES
				CI 33.84
				NORM PLAG 44.02
				BASALT
				JENSEN CALC-ALKALINE BASALT
				AL 51.19
				FE 20.49
				MG 28.32
				COLOR INDEX : 33.84
				HASHIMOTO INDEX : 44.84

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

RB	20.00:SR	270.00:Y	10.00:ZR	20.00:NB	10.00:BA	80.00:AU	-10.00:LI	30.00:BE	-10.00:
B	20.00:SC	50.20:V	290.00:CR	82.00:MN	0.00:CO	41.00:NI	24.00:CU	57.00:ZN	89.00:
GE	-10.00:AS	3.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:CD	-0.20:SB	1.20:CS	-2.60:
LA	1.80:CE	7.00:ND	5.00:SM	1.50:EU	0.50:YB	1.90:LU	0.32:HF	-1.00:TA	-1.00:
W	-3.00:PB	12.00:BI	-0.50:TH	0.60:U	-0.50:				

COMMENTS : LONE TREE CREEK. ANDESITIC LITHIC TUFF. FINE GRAINED. LT. GREEN. MODERATELY CHLORITIC. CUSPATE, ANGULAR, SHARD SHAPED CHLORITIZED FRAGMENTS UP TO 10 MM. IN DIAMETER. POSSIBLE DEVITRIFIED GLASS SHARDS OR PUMACEOUS FRAGMENTS.

REPORT #2000

PAGE 1  
 PRINTED 20-MAR-86  
 09:28:35

SAMPLE ID # AB13435

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 26002  
 TOWNSHIP :  
 NTS : 092I11  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NUMBER : 85982DM430  
 LOT : 0 CONCESSION :  
 GRID COORDINATES : E : 614575.0 N : 5619625.0 EL : 830.0

PROJECT # 982  
 PROVINCE : BRITISH COLUMBIA  
 PROJECT : B.C. MASSIVE SULPHIDES

FIELD NAME : VOLCANICLASTIC,MAFIC ,ASH,TECTONIZED,LOOK AT COMMENTS FILE ,LOOK AT COMMENTS FILE.  
 FINAL NAME :  
 ALTERATION : METAMORPHOSED ,CHLORITIZATION,STRONG.  
 MINERALIZATION : NIL ,NIL ,NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : XRAL

DATE : 04-OCT-85  
 DATE : 06-NOV-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

	WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %		NORMS	CLASSIFICATIONS AND INDICES						
SI02	57.70	61.27	56.92	Q	13.93	NA20+K20	5.82	SI02	61.27	SUBALKALINE		
AL203	14.80	15.72	17.21	C	3.25	OL*	24.82	NE*	27.61	Q*	47.57	SUBALKALINE
FE203	8.86	2.21	1.54	OR	14.30	CPX	0.00	OL	0.00	OPX	100.00	SUBALKALINE
FEO	0.00	6.48	5.03	AB	30.70	A	29.86	F	43.44	M	26.70	THOLEITIC
CAO	2.45	2.60	2.59	AN	12.39	AL203			15.72	NORM PLAG	28.76	CALC-ALKALINE
MGO	4.90	5.20	7.20	LC	0.00	AN	21.59	AB*	53.49	OR	24.92	K-RICH SERIES
NA20	3.21	3.41	6.14	NE	0.00	CI			25.25	NORM PLAG	28.76	ANDESITE
K20	2.27	2.41	2.86	KP	0.00	JENSEN CALC-ALKALINE BASALT						
TI02	0.58	0.62	0.43	AC	0.00	AL	54.77	FE	22.30	MG	22.93	
P205	0.08	0.08	0.07	DI	0.00	COLOR INDEX : 25.25						
MNO	0.00	0.00	0.00	HE	0.00	HASHIMOTO INDEX : 55.88						
S	0.00	0.00	0.00	EN	14.41							
NIO	0.00	0.00	0.00	FS	7.66							
CR203	0.00	0.00	0.00	FO	0.00							
CO2	0.00	0.00	0.00	FA	0.00							
H20+	0.00	0.00	0.00	WO	0.00							
H20-	0.00	0.00	0.00	LN	0.00							
LOI	5.16	0.00	0.00	MT	2.32							
TOTAL	94.17	100.00	100.00	IL	0.86							
				CR	0.00							
				HM	0.00							
				AP	0.18							
				PO	0.00							
				NS	0.00							
				KS	0.00							
				RU	0.00							
				AG	0.00							
				OL	0.00							
				OPX	22.07							
				CPX	0.00							
				AB*	30.70							

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

RB	50.00:SR	70.00:Y	30.00:ZR	50.00:NB	10.00:BA	320.00:AU	30.00:LI	10.00:BE	-10.00:
B	40.00:SC	38.90:V	240.00:CR	20.00:MN	990.00:CO	24.00:NI	6.00:CU	29.00:ZN	96.00:
GE	-10.00:AS	-2.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:CD	-0.20:SB	0.40:CS	1.30:
LA	2.80:CE	8.00:ND	5.00:SM	2.00:EU	0.60:YB	3.10:LU	0.48:HF	2.00:TA	-1.00:
W	-3.00:PB	10.00:BI	-0.50:TH	0.50:U	-0.50:				

COMMENTS : PS250/90. LONE TREE CREEK. CHLORITE SCHIST. LIKELY A MAFIC TUFF; APHYRIC, SLIGHTLY CALCAREOUS. TAKEN ADJACENT TO POLYMICCTIC CONGLOMERATE.

REPORT #200v

PAGE 1  
 PRINTED 20-MAR-86  
 09:29:46

SAMPLE ID # AB13437

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 26002  
 TOWNSHIP :  
 NTS : 092I11  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NUMBER : 85982DM437  
 LOT : 0 CONCESSION :  
 GRID COORDINATES : E : 613550.0 N : 5621425.0 EL : 1227.0

PROJECT # 982  
 PROVINCE : BRITISH COLUMBIA  
 PROJECT : B.C. MASSIVE SULPHIDES

FIELD NAME : VOLCANICLASTIC,MAFIC ,LAPILLI,MASSIVE ,CRYSTAL ,LOOK AT COMMENTS FILE.  
 FINAL NAME :  
 ALTERATION : PERVASIVE ,EPIDOTIZATION ,MODERATE.  
 MINERALIZATION : NIL ,NIL ,NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : XRAL

DATE : 04-OCT-85  
 DATE : 06-NOV-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

	WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %		NORMS
SI02	47.90	51.30	47.45	Q	0.00
AL203	16.70	17.89	19.50	C	0.00
FE203	10.90	2.45	1.71	OR	0.38
FEO	0.00	8.30	6.42	AB	39.89
CAO	9.48	10.15	10.06	AN	28.44
MGO	4.10	4.39	6.05	LC	0.00
NA2O	4.19	4.49	8.05	NE	0.21
K2O	0.06	0.06	0.08	KP	0.00
TIO2	0.79	0.85	0.59	AC	0.00
P2O5	0.11	0.12	0.09	DI	9.26
MNO	0.00	0.00	0.00	HE	7.62
S	0.00	0.00	0.00	EN	0.00
NIO	0.00	0.00	0.00	FS	0.00
CR203	0.00	0.00	0.00	FO	5.61
CO2	0.00	0.00	0.00	FA	4.61
H2O+	0.00	0.00	0.00	WO	0.00
H2O-	0.00	0.00	0.00	LN	0.00
LOI	6.16	0.00	0.00	MT	2.56
				IL	1.18
TOTAL	93.37	100.00	100.00	CR	0.00
				HM	0.00
				AP	0.25
				PO	0.00
				NS	0.00
				KS	0.00
				RU	0.00
				AG	0.00
				OL	10.21
				OPX	0.00
				CPX	16.88
				AB*	40.24

CLASSIFICATIONS AND INDICES

NA20+K20	4.55	SI02	51.30	SUBALKALINE		
OL*	20.30	NE*	47.99	Q*	31.71	ALKALINE
CPX	62.30	OL	37.70	OPX	0.00	SUBALKALINE
A	23.41	F	54.01	M	22.58	THOLEITIC
AL203	17.89	NORM PLAG	41.41	CALC-ALKALINE		
AN	41.19	AB*	58.26	OR	0.55	K-POOR SERIES
CI	30.83	NORM PLAG	41.41	BASALT		
JENSEN CALC-ALKALINE BASALT						
AL	56.91	FE	25.43	MG	17.66	
COLOR INDEX : 30.83						
HASHIMOTO INDEX : 23.33						

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

RB	-10.00:SR	90.00:Y	40.00:ZR	-10.00:NB	10.00:BA	50.00:AU	-10.00:LI	-10.00:BE	-10.00:
B	20.00:SC	53.70:V	430.00:CR	95.00:MN	1000.00:CO	35.00:NI	22.00:CU	40.00:ZN	87.00:
GE	-10.00:AS	-2.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:CD	-0.20:SB	3.10:CS	-0.50:
LA	1.80:CE	-3.00:ND	6.00:SM	1.60:EU	0.60:YB	1.70:LU	0.23:HF	-1.00:TA	-1.00:
W	-3.00:PB	10.00:BI	-0.50:TH	0.50:U	-0.50:				

COMMENTS : LONE TREE CREEK AREA. FELDSPAR CRYSTAL ANDESITE TO BASALTIC-ANDESITE. MINOR LAPILLI (MAROON COLOUR) PRESENT. ALTERED (SAUSSERITIZED) AND UNALTERED PLAGIO. CRYSTALS (50%) PRESENT.EPIDOTIZATION OF LAPILLI HOST. INTENSE, BARREN QTZ.VEINS.

REPORT #2000

PAGE 1  
 PRINTED 24-SEP-85  
 16:05:25

SAMPLE ID # AB13744

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 25346  
 TOWNSHIP :  
 NTS : 092114  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NUMBER : DM98285133  
 LOT : 0 CONCESSION :  
 GRID COORDINATES : E : 609575.0

PROJECT # 982  
 PROVINCE : BRITISH COLUMBIA  
 PROJECT : B.C. MASSIVE SULPHIDES  
 N : 5632100.0 EL : 0.0

FIELD NAME : VOLCANIC,MAFIC ,FINE,APHYRIC,MASSIVE ,TECTONIZED.  
 FINAL NAME :  
 ALTERATION : PERVASIVE ,CHLORITIZATION,MODERATE.  
 MINERALIZATION : NIL ,NIL ,NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : X-RAY LABS

DATE : 20-JUL-85  
 DATE : 10-SEP-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %	NORMS
SI02	57.00	60.81	Q 15.61
AL203	13.50	14.40	C 0.00
FE203	8.87	2.40	OR 3.88
FE0	0.00	6.35	AB 28.16
CA0	4.89	5.22	AN 23.56
MGO	5.76	6.14	LC 0.00
NA2O	2.92	3.12	NE 0.00
K2O	0.61	0.65	KP 0.00
TI02	0.75	0.80	AC 0.00
P205	0.10	0.11	DI 1.02
MNO	0.00	0.00	HE 0.42
S	0.00	0.00	EN 16.57
NIO	0.00	0.00	FS 6.89
CR203	0.00	0.00	FO 0.00
CO2	0.00	0.00	FA 0.00
H2O+	0.00	0.00	WO 0.00
H2O-	0.00	0.00	LN 0.00
LOI	5.00	0.00	MT 2.53
			IL 1.12
TOTAL	93.74	100.00	CR 0.00
			HM 0.00
			AP 0.22
			PO 0.00
			NS 0.00
			KS 0.00
			RU 0.00
			AG 0.00
			OL 0.00
			OPX 23.47
			CPX 1.44
			ABA 28.16

CLASSIFICATIONS AND INDICES

NA2O+K2O	9.77	SI02	60.81	SUBALKALINE		
OLA	26.18	NEA	25.13	QA	48.69	SUBALKALINE
CPX	5.79	OL	0.00	OPX	94.21	SUBALKALINE
A	20.44	F	46.21	M	33.35	THOLEITIC
AL203	14.40	NORM	PLAG	45.55	THOLEITIC	
AN	42.38	ABA	50.65	OR	6.97	AVERAGE SERIES
CI	28.56	NORM	PLAG	45.55	BASALT	
JENSEN CALC-ALKALINE BASALT						
AL	50.14	FE	22.81	MG	27.05	
COLOR INDEX : 28.56						
HASHIMOTO INDEX : 44.92						

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

AU	-10.00:LI	30.00:BE	-10.00:FE	40.00:SC	38.10:V	320.00:CR	83.00:MN	940.00:CO	32.00:
NI	58.00:CU	76.00:ZN	100.00:GE	-10.00:AS	-2.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:
CD	0.20:SB	0.50:CS	-0.50:LA	1.00:CE	14.00:ND	6.00:SM	0.60:EU	0.60:YB	1.30:
LU	0.28:HF	2.00:TA	-1.00:W	-3.00:PB	54.00:BI	-0.50:TH	1.10:U	-0.50:RB	20.00:
SR	250.00:Y	10.00:ZR	50.00:NB	20.00:BA	180.00:				

COMMENTS : NICOLA GROUP, 10 M. NORTH OF 3+50W 4N. GENESIS 12. RUBBLE CONSISTING OF FINE GRAINED SACCHAROIDAL LIMESTONE AND SLIGHTLY SCHISTOSE-CHLORITIC AMPHIBOLITE



REPORT #2000

PAGE 1  
 PRINTED 20-MAR-86  
 09:21:02

SAMPLE ID # AB13746

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 25346      FIELD NUMBER : DM98285136      PROJECT # 982  
 TOWNSHIP :              LOT : 0 CONCESSION :      PROVINCE : BRITISH COLUMBIA  
 NTS : 092I14              GRID COORDINATES : E : 614150.0 N : 5630325.0 EL : 0.0  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NAME : VOLCANIC,MAFIC ,FINE,APHYRIC,TECTONIZED,LOOK AT COMMENTS.  
 FINAL NAME :  
 ALTERATION : FRACTURE CONTROLLED,CARBONATIZATION ,WEAK.  
 MINERALIZATION : NIL ,NIL ,NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : X-RAY LABS

DATE : 21-JUL-85  
 DATE : 10-SEP-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

	WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %	NORMS
SiO2	68.60	72.31	69.39	Q 42.78
Al2O3	11.80	12.44	14.07	C 2.74
Fe2O3	6.55	2.37	1.71	OR 6.01
FeO	0.00	4.08	3.27	AB 22.26
CaO	2.83	2.98	3.07	AN 14.19
MgO	1.41	1.49	2.13	LC 0.00
Na2O	2.27	2.39	4.45	NE 0.00
K2O	0.93	0.98	1.20	KP 0.00
TiO2	0.75	0.79	0.57	AC 0.00
P2O5	0.16	0.17	0.14	DI 0.00
MnO	0.00	0.00	0.00	HE 0.00
S	0.00	0.00	0.00	EN 4.25
NiO	0.00	0.00	0.00	FS 3.69
Cr2O3	0.00	0.00	0.00	FO 0.00
CO2	0.00	0.00	0.00	FA 0.00
H2O+	0.00	0.00	0.00	WO 0.00
H2O-	0.00	0.00	0.00	LN 0.00
LOI	4.23	0.00	0.00	MT 2.57
				IL 1.14
TOTAL	94.87	100.00	100.00	CR 0.00
				HM 0.00
				AP 0.37
				PO 0.00
				NS 0.00
				KS 0.00
				RU 0.00
				AG 0.00
				OL 0.00
				OPX 7.94
				CPX 0.00
				ABA 22.26

CLASSIFICATIONS AND INDICES

NA2O+K2O	3.37	SiO2	72.31	SUBALKALINE		
OL*	8.16	NE*	18.30	Q*	73.54	SUBALKALINE
CPX	0.00	OL	0.00	OPX	100.00	SUBALKALINE
A	30.47	F	56.11	M	13.42	THOLEIITIC
Al2O3	12.44	NORM	PLAG	38.94	THOLEIITIC	
AN	33.43	AB*	52.42	OR	14.15	AVERAGE SERIES
CI	11.65	NORM	PLAG	38.94	ANDESITE	
JENSEN THOLEIITIC DACITE						
AL	64.68	FE	25.55	MG	9.77	
COLOR INDEX :	11.65					
HASHIMOTO INDEX :	31.45					

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

AU	-10.00:LI	20.00:BE	-10.00:B	70.00:SC	17.70:V	70.00:CR	-2.00:MN	990.00:CO	12.00:
NI	11.00:CU	16.00:ZN	130.00:GE	-10.00:AS	-2.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:
CD	0.20:SB	0.30:CS	3.40:LA	1.70:CE	24.00:ND	10.00:SM	0.80:EU	0.80:YB	2.00:
LU	0.40:HF	3.00:TA	-1.00:W	-3.00:PB	72.00:BI	-0.50:TH	1.70:U	-0.50:RB	30.00:
SR	130.00:Y	20.00:ZR	130.00:NB	20.00:BA	520.00:				

COMMENTS : PS007/479W. FINE GRAINED, LT. GREEN, MASSIVE ANDESITE, DISTRIBUTED THROUGHOUT. FINE ORANGE-RUST STRINGERS OF ANKERITE?, 1 MM. IN WIDTH.

REPORT #2000

PAGE 1  
 PRINTED 20-MAR-86  
 09:22:05

SAMPLE ID # AB13747

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 25346  
 TOWNSHIP :  
 NTS : 092111  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NUMBER : DM98285141  
 LOT : 0 CONCESSION :

PROJECT # 982  
 PROVINCE : BRITISH COLUMBIA  
 PROJECT : B.C. MASSIVE SULPHIDES  
 GRID COORDINATES : E : 611150.0 N : 5633225.0 EL : 0.0

FIELD NAME : VOLCANICLASTIC, INTERMEDIATE, ASH, TECTONIZED, CRYSTAL, LOOK AT COMMENTS FILE.  
 FINAL NAME :  
 ALTERATION : METAMORPHOSED, LOOK AT COMMENTS, LOOK AT COMMENTS.  
 MINERALIZATION : NIL, NIL, NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : X-RAY LABS

DATE : 21-JUL-85  
 DATE : 10-SEP-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

	WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %		NORMS	CLASSIFICATIONS AND INDICES						
SI02	70.50	72.83	68.90	Q	36.26	NA20+K20	4.89	SI02	72.83	SUBALKALINE		
AL203	13.60	14.05	15.67	C	0.00							
FE203	2.03	1.88	1.34	OR	14.10	OL*	0.75	NE*	23.30	Q*	75.95	SUBALKALINE
FEO	0.00	0.20	0.15	AB	23.40							
CAO	4.79	4.95	5.02	AN	20.41	CPX	84.81	OL	0.00	OPX	15.19	ALKALINE
MGO	0.78	0.81	1.14	LC	0.00							
NA20	2.47	2.55	4.68	NE	0.00	A	64.47	F	24.90	M	10.63	CALC-ALKALINE
K20	2.26	2.33	2.82	KP	0.00							
TI02	0.32	0.33	0.24	AC	0.00	AL203	14.05	NORM	PLAG	46.59		THOLEITIC
P205	0.07	0.07	0.06	DI	3.35							
MNO	0.00	0.00	0.00	HE	0.00	AN	35.25	AB*	40.40	OR	24.35	K-RICH SERIES
S	0.00	0.00	0.00	EN	0.60							
NIO	0.00	0.00	0.00	FS	0.00	CI	5.59	NORM	PLAG	46.59		HIGH ALUMINA ANDESITE
CR203	0.00	0.00	0.00	FO	0.00							
CO2	0.00	0.00	0.00	FA	0.00							
H20+	0.00	0.00	0.00	WO	0.00	JENSEN		CALC-ALKALINE	RHYOLITE			
H20-	0.00	0.00	0.00	LN	0.00	AL	84.54	FE	9.33	MG	6.13	
LOI	3.08	0.00	0.00	MT	0.00							
				IL	0.31							
TOTAL	96.80	100.00	100.00	CR	0.00	COLOR INDEX :		5.59				
				HM	1.34	HASHIMOTO INDEX :		29.51				
				AP	0.15							
				PO	0.00							
				NS	0.00							
				KS	0.00							
				RU	0.08							
				AG	0.00							
				OL	0.00							
				OPX	0.60							
				CPX	3.35							
				AB*	23.40							

TRACE ELEMENTS (P.P.M.) AU, PT (P.P.B.)

AU	-10.00:LI	10.00:BE	-10.00:B	70.00:SC	13.20:V	30.00:CR	-2.00:MN	780.00:CO	3.00:
NI	8.00:CU	9.50:ZN	96.00:GE	-10.00:AS	-2.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:
CD	0.20:SB	-0.20:CS	1.70:LA	1.90:CE	26.00:ND	10.00:SM	1.10:EU	1.60:YB	2.80:
LU	0.58:HF	3.00:TA	-1.00:W	-3.00:PB	22.00:BI	-0.50:TH	1.50:U	0.50:RB	30.00:
SR	80.00:Y	80.00:ZR	120.00:NB	-10.00:BA	500.00:				

COMMENTS : PS286/39SW. DACITIC COMPOSITION FELDSPAR CRYSTAL TUFF. PALE GREEN-WHITE BLOCKY, EUHEDRAL PLAGIOCLASE, 1-2 MM., 10%, WITH SLIGHTLY SERICITIC FOLIATION PLANES.

REPORT #2000

PAGE 1  
 PRINTED 20-MAR-86  
 09:23:09

SAMPLE ID # AB13748

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 25346  
 TOWNSHIP :  
 NTS : 092111  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NUMBER : DM98285142  
 LOT : 0 CONCESSION :  
 GRID COORDINATES : E : 610850.0 N : 5633650.0 EL : 0.0

PROJECT # 982  
 PROVINCE : BRITISH COLUMBIA  
 PROJECT : B.C. MASSIVE SULPHIDES

FIELD NAME : VOLCANICLASTIC,MAFIC ,ASH,MASSIVE ,LOOK AT COMMENTS FILE.  
 FINAL NAME :  
 ALTERATION : METAMORPHOSED ,CHLORITIZATION,MODERATE.  
 MINERALIZATION : NIL ,NIL ,NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : X-RAY LABS

DATE : 21-JUL-85  
 DATE : 10-SEP-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %	NORMS
SI02	51.00	54.17	Q 7.75
AL2O3	16.10	17.10	C 2.38
FE2O3	13.20	3.37	OR 0.89
FEO	0.00	9.59	AB 36.93
CAO	4.57	4.85	AN 22.45
MGO	4.16	4.42	LC 0.00
NA2O	3.82	4.06	NE 0.00
K2O	0.14	0.15	KP 0.00
TI02	1.67	1.77	AC 0.00
P2O5	0.28	0.30	DI 0.00
MNO	0.21	0.22	HE 0.00
S	0.00	0.00	EN 12.37
NIO	0.00	0.00	FS 10.53
CR2O3	0.00	0.00	FO 0.00
CO2	0.00	0.00	FA 0.00
H2O+	0.00	0.00	WO 0.00
H2O-	0.00	0.00	LN 0.00
LOI	3.77	0.00	MT 3.57
TOTAL	94.14	100.00	IL 2.51
			CR 0.00
			HM 0.00
			AP 0.63
			PO 0.00
			NS 0.00
			KS 0.00
			RU 0.00
			AG 0.00
			OL 0.00
			OPX 22.89
			CPX 0.00
			AB* 36.93

CLASSIFICATIONS AND INDICES

NA2O+K2O	4.21	SI02	54.17	SUBALKALINE
OL*	25.41	NE*	32.79	Q* 41.80
CPX	0.00	OL	0.00	OPX 100.00
A	19.80	F	59.39	M 20.80
AL2O3	17.10	NORM	PLAG	37.80
AN	37.24	AB*	61.28	OR 1.48
CI	28.97	NORM	PLAG	37.80
				ANDESITE
				JENSEN THOLEIITIC ANDESITE
AL	51.93	FE	31.11	MG 16.97
				COLOR INDEX : 28.97
				HASHIMOTO INDEX : 33.88

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

AU	-10.00:LI	20.00:BE	-10.00:B	50.00:SC	57.20:V	460.00:CR	6.00:MN	0.00:CO	34.00:
NI	20.00:CU	170.00:ZN	160.00:GE	-10.00:AS	-2.00:SE	-3.00:BR	-1.00:MO	-5.00:AG	-0.50:
CD	-0.20:SB	0.40:CS	-1.60:LA	1.30:CE	18.00:ND	10.00:SM	1.10:EU	1.40:YB	2.40:
LU	0.41:HF	1.00:TA	-1.00:W	-3.00:PB	14.00:BI	-0.50:TH	-0.50:U	-0.50:RB	10.00:
SR	570.00:Y	30.00:ZR	110.00:NB	20.00:BA	140.00:				

COMMENTS : PS302/45S. PALE GREEN. FINE GRAINED ANDESITIC TUFF. POSSIBLE MATRIX MATERIAL TO CRYSTAL TUFF. BARREN. WHITE QTZ. VEINS (3-30 CM., 3% OF ROCK).

REPORT #2000

PAGE 1  
 PRINTED 24-SEP-85  
 16:09:38

SAMPLE ID # AB13749

WHOLE ROCK GEOCHEMICAL ANALYSIS

LAB REPORT # 25346  
 TOWNSHIP :  
 NTS : 092111  
 UTM ZONE : 10  
 SAMPLE TYPE : GRAB SAMPLE

FIELD NUMBER : DM98285147  
 LOT : 0 CONCESSION :  
 GRID COORDINATES : E : 616995.0 N : 5612470.0 EL : 0.0

PROJECT # 982  
 PROVINCE : BRITISH COLUMBIA  
 PROJECT : B.C. MASSIVE SULPHIDES

FIELD NAME : VOLCANICLASTIC,FELSIC,ASH,MASSIVE ,CRYSTAL ,LOOK AT COMMENTS FILE.  
 FINAL NAME :  
 ALTERATION : UNKNOWN ,LOOK AT COMMENTS,LOOK AT COMMENTS.  
 MINERALIZATION : NIL ,NIL ,NO COMMENT.  
 FORMATION :

SAMPLED BY : D. MALLALIEU.  
 ANALYZED BY : X-RAY LABS

DATE : 22-JUL-85  
 DATE : 10-SEP-85

ANALYTICAL  
 TECHNIQUE : XRF + NEUTRON ACTIVATION

	WT %	NORMALIZED ANHYDROUS WT %	NORMALIZED ANHYDROUS CATION %		NORMS
SI02	78.90	79.91	73.79	Q	36.25
AL203	11.60	11.75	12.79	C	0.03
FE203	0.45	0.46	0.32	OR	3.82
FEO	0.00	0.00	0.00	AB	57.02
CAO	0.36	0.36	0.36	AN	1.47
MGO	0.32	0.32	0.45	LC	0.00
NA2O	6.29	6.37	11.40	NE	0.00
K2O	0.64	0.65	0.76	KP	0.00
TIO2	0.13	0.13	0.09	AC	0.00
P2O5	0.05	0.05	0.04	DI	0.00
MNO	0.00	0.00	0.00	HE	0.00
S	0.00	0.00	0.00	EN	0.89
NIO	0.00	0.00	0.00	FS	0.00
CR2O3	0.00	0.00	0.00	EO	0.00
CO2	0.00	0.00	0.00	EA	0.00
H2O+	0.00	0.00	0.00	WO	0.00
H2O-	0.00	0.00	0.00	LN	0.00
LOI	0.93	0.00	0.00	HT	0.00
TOTAL	98.74	100.00	100.00	IL	0.00
				CR	0.00
				HM	0.32
				AP	0.11
				PO	0.00
				NS	0.00
				KS	0.00
				KU	0.09
				AG	0.00
				OL	0.00
				OPX	0.89
				CPX	0.00
				ABA	57.02

CLASSIFICATIONS AND INDICES					
NA2O+K2O	7.02	SI02	79.91	SUBALKALINE	
OLA	0.71	NEA	36.33	QA	62.95
CPX	0.00	OL	0.00	OPX	100.00
A	90.53	F	5.29	M	4.18
AL203	11.75	NORM	PLAG	2.52	THOLEITIC
AN	2.36	ABA	91.50	OR	6.13
CI	1.21	NORM	PLAG	2.52	RHYOLITE
JENSEN CALC-ALKALINE RHYOLITE					
AL	93.74	EE	2.99	MG	3.27
COLOR INDEX : 1.21					
HASHIMOTO INDEX : 12.61					

TRACE ELEMENTS (P.P.M.) AU,PT (P.P.B.)

AU	-10.00:LI	10.00:BE	-10.00:B	30.00:SC	21.10:V	10.00:CR	-2.00:MN	84.00:CO	-1.00:
NI	11.00:CU	6.00:ZN	120.00:GE	-10.00:AS	2.00:SE	21.00:BR	-1.00:MO	-5.00:AG	-0.50:
CD	0.40:SB	-0.20:CS	1.80:LA	2.20:CE	33.00:ND	15.00:SM	1.50:EU	-0.60:YB	4.10:
LU	0.82:HF	4.00:TA	-1.00:W	-3.00:PB	160.00:BI	-0.50:TH	1.50:U	-0.50:RB	10.00:
SR	30.00:Y	60.00:ZR	110.00:NB	10.00:BA	260.00:				

COMMENTS : PS327/40SW. QTZ.-PHYRIC RHYOLITE. LIKELY A CRYSTAL TUFF. FRESH SURFACE SNOW WHITE APHRANTIC, AND SILICIOUS. QTZ. CRYSTALS <5%. 1MM. FELDSPAR IS ORANGE-YELLOW. SUBHEDRAL AND BLOCKY. MASSIVE ROCK SAMPLE TAKEN FROM RED HILL.

A P P E N D I X 4

Rock Descriptions

- R1 - mafic tuff, slightly foliated, streaky hematite staining, fine grained, 1% disseminated burgandy spots on cut surface.
- R2 - as R1
- R3 - Quartz feldspar porphyry, pale green-creamy white streaky tuffaceous nature with darker green less siliceous streaky bands. Porphyroblasts of feldspar (10%) and quartz 3-5% are poorly developed.
- R4 - Quartz feldspar porphyry, Porphyroblasts of feldspar (20%) and quartz 25%, well developed foliation, limonite along foliation planes, slightly sericitized. 12%  $Al_2O_3$ , 3%  $K_2O$ , 1.45%  $Na_2O$ , 69.3%  $SiO_2$
- R5 - Rhyolite lapilli tuff. Silica fragments from 1mm to 1 cm embedded in altered creamy matrix and unaltered green matrix. Some poorly developed feldspar porphyroblasts.
- R6 - Quartz feldspar porphyry. 3-5% .5 mm quartz eyes, 5-10% .5 mm feldspar grains. Rock has strong chloritic green color, less silica than usual QFP. Quartz latite porphyry tuff.
- R7 - As R6, up to 1 mm feldspar porphyroblasts. Minor lapilli fragments up to 8 mm in size.
- R8 - Welded rhyolite tuff. Less than 1% feldspar porphyroblasts occasional 1 mm quartz eye seen. Glassy green color.
- R9 - Mafic tuff - porphyritic with feldspar crystals up 1.5 mm.
- R10 - Welded tuff, Quartz feldspar porphyry. 10-15% feldspar crystals up to 1.5 mm. 2% poorly developed quartz crystals. Rock is highly siliceous with distinct chlorite green. Similar to R6.
- R11 - Aqua green, poorly porphyritic (feldspars) mafic volcanic.

- R13 - Rusty brown altered volcanic. Strongly stretched and sheared, good foliation. Stretched feldspar Blobs embedded in ankeritic brown altered matrix. Strongly carbonitized. 45.6%CaO, .05%Na<sub>2</sub>O, .48%K<sub>2</sub>O, 4.9%Al<sub>2</sub>O<sub>3</sub>, 16.6%SiO<sub>2</sub>, 2.9 ppm Ag.
- R14 - Chert breccia, large white grey chert fragments up to 3 cm in minor mudstom matrix. Matrix comprises 5-10% of rock.
- R15 - Chert breccia as R14 but with fragments up to 1.5 cm.
- R16 - Medium grained mafic volcanic.
- R17 - Largely altered to sericite, strongly sheared and limonitic. Very siliceous with minor quartz eyes. Quartz is hard to distinguish due to alteration and sheared nature of rock. 15.5% Al<sub>2</sub>O<sub>3</sub>, 3.5% K<sub>2</sub>O, 3% Na<sub>2</sub>O, 66.5%SiO<sub>2</sub>, 1.3 ppm Ag.
- R18 - Highly carbonitized rock. White in color containing 10-20% 1 mm sized quartz grains, embedded by creamy white grainy carbonate. Rock is possibly completely carbonitized quartz feldspar porphyry. 2.5%Al<sub>2</sub>O<sub>3</sub>, 49.1%CaO, 0.86%Fe<sub>2</sub>O<sub>3</sub>, 0.16%K<sub>2</sub>O, 0.95%Na<sub>2</sub>O, 12% SiO<sub>2</sub>, 3.1 ppm Ag.
- R19 - Grandierite.  
30 - 35% euhedral quartz, 20-25% orthoclase feldspar  
30-35% mafic.
- R20 - Rhyolite flow breccia or rhyolite lappilli tuff fragments very angular from 1 mm to 1 cm in size. Aqua green blue colour.
- R21 - As R20 but strongly fractured and very limonitic. 10.5%Al<sub>2</sub>O<sub>3</sub>, 5.86%Na<sub>2</sub>O 76.74%SiO<sub>2</sub>
- R22 - As R20, fragments generally smaller and higher feldspar content. Strong alteration of feldspar to clay and slightly carbonitized with 3% disseminated pyrite. Geochemical similar to R21.
- R23 - Rhyolite tuff. Pale creamy green matrix containing 25% quartz eyes. Up to 2 mm.

- R24 - Highly siliceous rhyolite sulphide breccia. Rhyolite fragments up to 1.5 cm embedded in a sulphide rich matrix. Rock is composed of about 20-30% pyrite occurring as semi-massive in matrix and also disseminated in fragments. 19% Al<sub>2</sub>O<sub>3</sub>, 7.05% CaO, 16.75% Fe<sub>2</sub>O<sub>3</sub>, 1.7% K<sub>2</sub>O, 3.57% MgO, 1.8% Na<sub>2</sub>O, .025% Pb, 47.11% SiO<sub>2</sub>, .48% TiO<sub>2</sub>, 450 ppm Cu, 1.3 ppm Ag.
- R25 - Similar to R24, less sulphides (10-15%) and less silicified. 21.17% Al<sub>2</sub>O<sub>3</sub>, 3.5% CaO, 14.62% Fe<sub>2</sub>O<sub>3</sub>, 3.14% K<sub>2</sub>O, 2.73% MgO, 4.07% Na<sub>2</sub>O, .024% Pb, 48.56% SiO<sub>2</sub>, .53% TiO<sub>2</sub>, 475 ppm Cu, 1.1 Ag.
- R26 - Rhyolite porphyry - 50 - 60% quartz eyes. Up to 3mm, matrix creamy white, soft. 3.5% disseminated pyrite. 13.28% Al<sub>2</sub>O<sub>3</sub>, 2.8% CaO, 8.83% Fe<sub>2</sub>O<sub>3</sub>, 1.99% K<sub>2</sub>O, 2.66% MgO, 1.86% Na<sub>2</sub>O, 66.89% SiO<sub>2</sub>, 0.43% TiO<sub>2</sub>, 375 ppm Cu, 0.8 ppm Ag.
- R27 - Similar to R21. Fractured and limonitic.
- R28 - Rhyolite tuff. Fine grained pale brown matrix 10-15% 1 mm sized quartz eyes and 1% greater than 1 mm up to 6 mm.



- M1 - Quartz feldspar porphyry - aphanitic pale green ground mass with 20-30% euhedral 1 mm feldspar crystals and 1% 1mm quartz eyes.
- M2 - Fine grained mafic tuff - pale dark green displaying possible crude bedding features. 1% rusty sulphides.
- M3 - Fine to medium intermediate (andesite?) tuff. 1% dark grey grains up to 2 mm, 2% rusty indistinguishable sulphide grains.
- M4 - Rhyolite ash-lapilli tuff - creamy colored matrix embedding abundant glass shards up to 1 mm long. Matrix and shards are embedding shapeless blobs of silica which have replaced previous material (likely ash fragments). 1-2% rusty sulphides.
- M5 - Quartz Feldspar porphyry (rhyolite lapilli tuff) extreme variety in grain size up to 1 cm. Larger fragments are themselves quartz feldspar porphyry. 1% disseminated pyrite, Manganese staining 1 hematitic sulphide fragment 7 mm x 4 mm.
- M6 - Quartz feldspar porphyry (quartz latite ash tuff) pale green ash tuff. Epidote alteration between two small quartz veins. Fine disseminated pyrite increases along selvages of veins. 1% quartz eyes.
- M8 - Quartz feldspar porphyry - quartz crystals up to 3 mm (5%) - Feldspar crystals up to 2 mm. Also fragments up to 8 mm of finer-grained porphyry. (Rhyolite ash tuff with minor lapilli fragments).
- M9 - As M8
- M10 - Olivine Basalt. 1-2% fine brown-yellow olivine crystals in dark fine grained matrix.
- M12 - Quartz feldspar porphyry as M8. However, all fragments and crystals have been stretched and smeared.
- M13 - Quartz feldspar porphyry. Quartz grains 10-20%, up to 1 mm in size, feldspar grains 20-30%, up to 1 mm in size. Hematite staining.

- M15 - Quartz feldspar porphyry. Quartz 30-40%, feldspar 30%, colour pale green with creamy coloured matrix of altered feldspar material - rock strongly silicified.
- M16 - Olivine basalt. As M10.
- M17 - Highly silicified mafic volcanic - 3% disseminated sulphide (chalcopyrite and pyrite).
- M18 - Poorly sorted medium grained sandstone (graywacke) composed of feldspar grains, quartz grains, rock fragments, mud fragments.
- M19 - As M18 (graywacke).
- M21 - Medium grained quartz feldspar porphyry. Rock has been altered giving it a rusty brown-green color. Rusty brown material was likely groundmass as it envelopes quartz grains. Also a spotty white mineral of less than .5 mm occurs disseminated throughout specimen. About 2%.
- M22 - Pale green quartz feldspar porphyry. As M8.
- M23 - Medium grained quartz feldspar porphyry in contact with siliceous ash tuff.
- M24 - Mafic tuff, medium grained. Green.
- M25 - Medium grained quartz feldspar porphyry hematite staining.
- M26 - Quartz feldspar porphyry. As M8.
- M27 - Fine grained light grey limestone.
- M30 - Medium grained quartz feldspar porphyry containing fragments of Q.F.P. Distinct ankeritic brown color.
- M31 - Quartz feldspar porphyry - secondary silic flooding overprinting original texture of rock, moderately fractured, fractures are rusty.

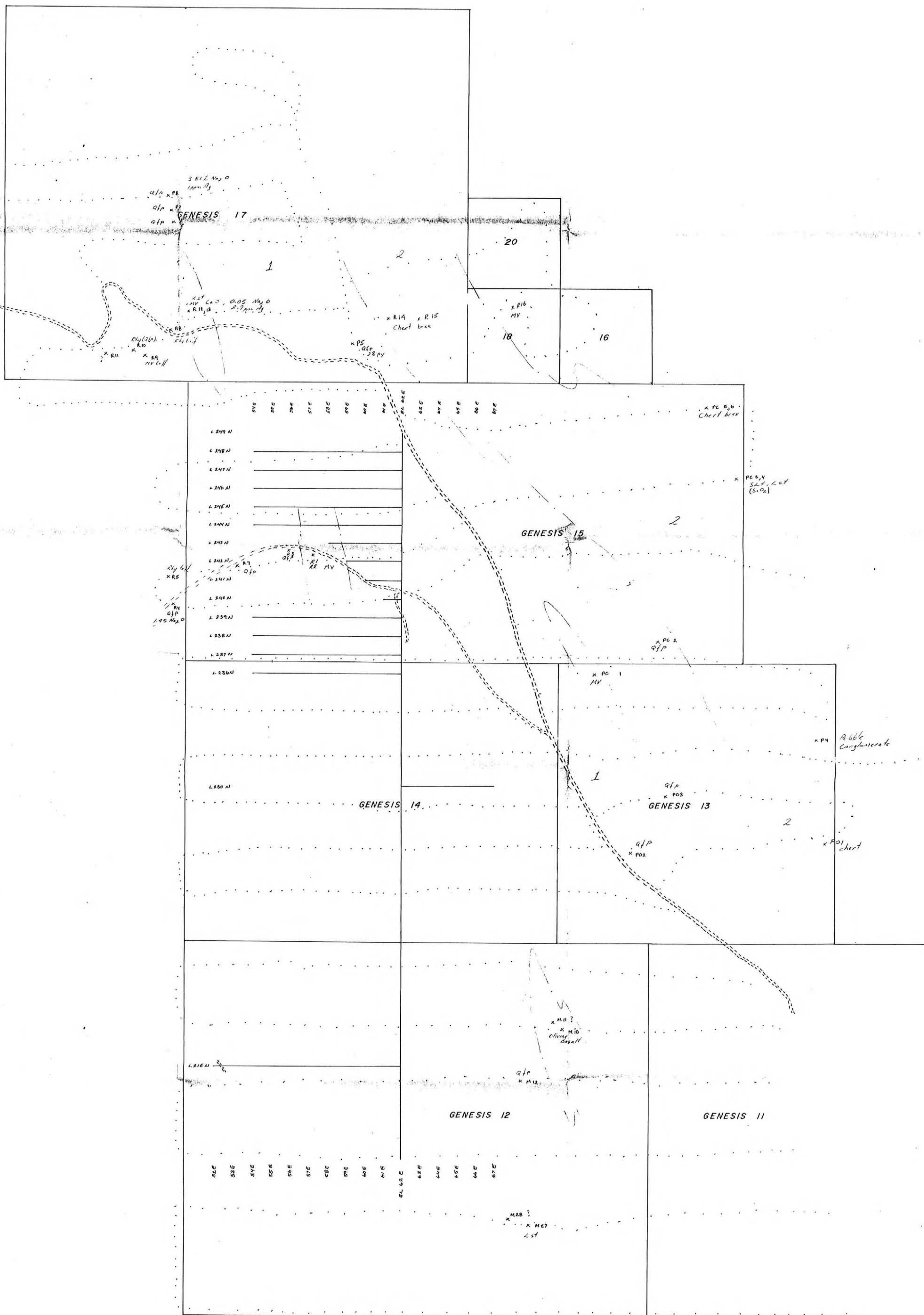
- M33 - Carbonitized basalt.
- M34 - Chert breccia, highly silicified, carbonaceous. Pale white chert fragments up to 7 mm in a black silicified carbonaceous matrix.
- M35 - Chert breccia, fragments of dark grey to pale grey chert up to 2 cm diameter.
- M37 - Chert breccia with intercalated carbonaceous mudstone.
- M39 - Grey chert with a very fine fissile mudstone parting.
- M100 - Massive black chert. Weathers rusty, 1% disseminated pyrite.

- P1 - Grey to black massive chert breccia, hematite staining subcrop.
- P2 - Medium grained up to 2 mm Quartz feldspar porphyry, 20% quartz grains 30-40% feldspar.
- P3 - Quartz feldspar porphyry, sericite alteration, slightly sheared. Pale blue green.
- P4 - Polymictic pebble conglomerate - pebbles angular to subrounded, poorly sorted both size and composition. Majority of pebbles are QFP with minor mafic tuffaceous and massive volcanics, mudstone pebbles, matrix composed of quartz, feldspar, mudstone and volcanic sand sized grains.
- P5 - Medium grained quartz feldspar porphyry, matrix is pale green with red hematite staining. Quartz = 10-15%. Feldspar = 30%. Hematite staining appears to be originating from disseminating (1-2%) sulphides.
- P6 - As P5. No hematite stain, less than 1% disseminated sulphides.
- P7 - Slightly porphyritic felsic volcanic, 5-10% porphyroblasts up to 1 mm composed of mostly feldspar and less quartz. Rock is dark green-grey and very siliceous. Rhyolite.
- P8 - Pale brown-green quartz feldspar porphyry. Quartz eyes 15-20% up to 2 mm feldspar crystals 20% up to 2 mm. Less than 1% rusty disseminated sulphide, lightly carbonatized (3.81% Na<sub>2</sub>O, 61.33% SiO<sub>2</sub>, 1 ppm Ag)
- P9 - Pale creamy white-green chert breccia. Chert fragments up to 2 cm. 3-4% disseminated pyrite. (2 ppm Ag).
- P11 - Ultramafic - strongly sheared and altered. Smear stringers of serpentine 10%, pyroxene 5-10%. Mostly brown to redish brown altered material surround the serpentine and pyroxenes. 1% disseminated pyrite. (26.21% MgO, 34.43% SiO<sub>2</sub>, 7.71% Fe<sub>2</sub>O<sub>3</sub>, .9 ppm Ag).

- P12 - Ultramafic - sheared and altered. Matrix similar to P11 however, some stretched lumps (.5x2 cm) of secondary quartz and fine-grained soft mineral. Yellow alteration mineral present ( 1%) possibly jarosite.
- P13 - Altered Quartz feldspar porphyry. Secondary biotite, less than 1%, sericite 2-5% creamy-pink in color.

- P.C. 1 - Mafic volcanic - pale turquoise green, very fine grained, darker mm sized blotches of chlorite throughout. Less than 1% rusty pyrite.
- P.C. 2 - Quartz feldspar porphyry. Highly siliceous with mm sized quartz eyes and up to 2 mm sized feldspar porphyroblasts. 3% disseminated sulphides occurring as black blotches or smears with matrix.
- P.C. 3 - Black siltstone with chert fragments up to 1 cm. Rock is strongly silicified with 15-20% quartz veinlets (likely Cache Creek).
- P.C. 4 - 25 m ridge of dirty limestone showing signs of silicification in spots. At these spots rock weathers rusty and contains minor sulphides. At times silicification is very intense with abundant quartz veinlets.
- P.C. 5 - Light to dark grey chert breccia with dark silica filled veinlets. Minor rusted sulphide.
- P.C. 6 - Chert-siltstone breccia, highly silicified 1-2% sulphide as rusty boxwork with some completely weathered. Silty material appears to have been forced into small abundant fractures. Also highly sheared volcanic with  $\frac{1}{2}$ % quartz eyes. Has siltstone component also 2-3% sulphides mostly weather. Likely silty intermediate tuff.
- P.C. 7 - Olivine basalt - medium grained with trace chalcopryrite and bornite.
- P.C. 8 - Massive mafic volcanic, dark green with 5% pale creamy 2 mm sized blotches of alteration.
- P.C. 8A - Highly siliceous volcanic, strong epidote alteration through rock, 1-2% sulphide.
- P.C. 9 - Highly silicified rock with strong epidote alteration. 2-3% chalcopryrite, with chrysocolla and malachite near quartz stringer. .05% NaO<sub>2</sub>  
1750 ppm Cu, 1.7 ppm Ag, 60.2% SiO<sub>2</sub>, 0.62%TiO<sub>2</sub>

- P.C. 10 - Highly silicified altered and leached. Rock weathers rusty orange with minor sulphides. Appears to be silicified mafic volcanic however, could be more intermediate to acidic.
- P.C. 11 - Dark green mafic volcanic with minor very fine grained disseminated sulfides.
- P.C. 12 - Mafic volcanic, rusty weathering with quartz stringers finely disseminated throughout rock especially on the quartz stringers and stringer salvages.
- P.C. 13 - Very rusty medium-grained green mafic volcanic.
- P.C. 13A Lapilli sized fragmental mafic volcanic. Medium grained, both matrix and lapilli fragments. Feldspar crystals produce good prophyroblastic texture.
- P.C. 14 - Similar to P.C. 13 but with quartz stringers and  $\frac{1}{2}$  mm sized prophyroblasts of dark green material.
- P.C. 15 - Similar to P.C. 14. 1% pyrite.



- 1 - Mainly quartz talcum sandstone  
 chert like stuff  
 lower talcum stuff  
 some limestone and shales
- 2 - Cache Creek Group?  
 chert breccia  
 mafic volcanics  
 rubble conglomerate  
 siliceous limestone

- traverse lines
- x rock sample locality
- claim lines, cut grid lines
- secondary roads
- LCP

GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

Scale 1:100,000  
 15,002

Samarkand Resources Inc. Vep., B.C.

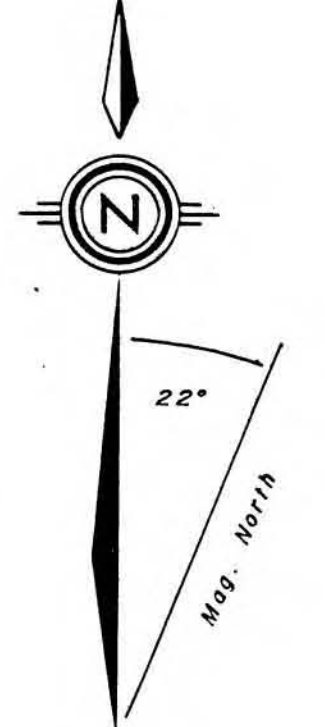
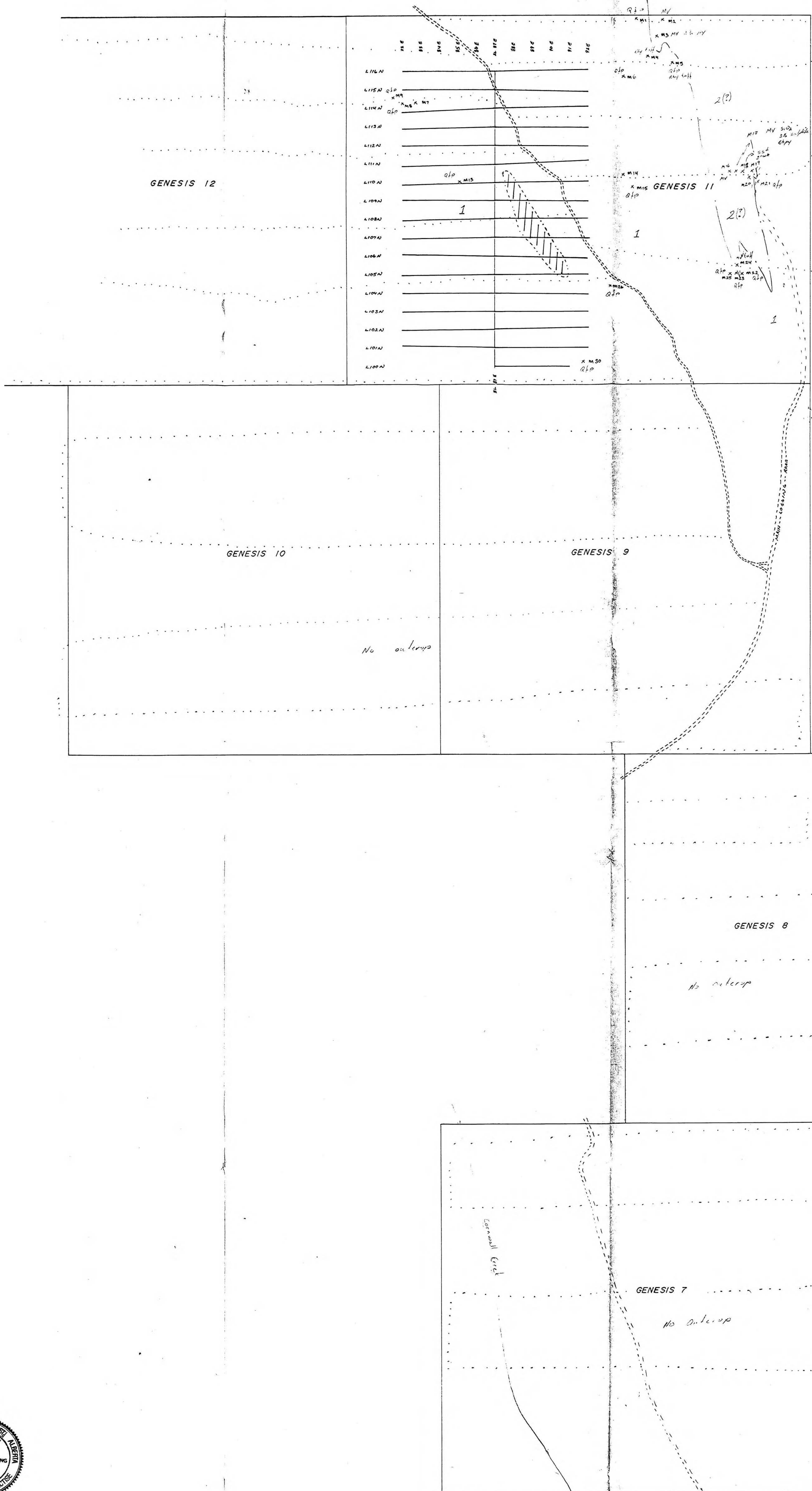
Linecutting,  
 Prospecting Plan

GENESIS NORTH GROUP  
 Kamloops Mining Division  
 NTS 92 1 / 11, 14

June 1986 Page 5  
 QUEST CANADA EXPLORATION SERVICES INC.







- 1 Mainly Quartz Feldspar Amphibol  
with lesser mafic stuff  
more limestone and sediments
- 2 mafic volcanics  
stuff, thin

- approx. location of Zn soil  
geochemistry anomaly, 1971.
- traverse lines
- rock sample locality
- claim lines, cut grid lines
- secondary roads
- LCP

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

15,002

Scale 1:100,000

Samarkand Resources Inc. Ven., B.C.

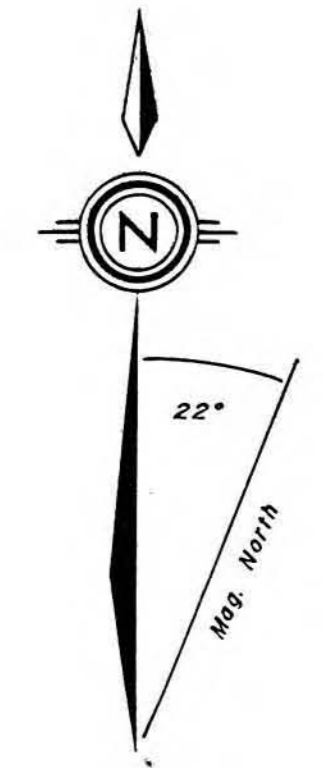
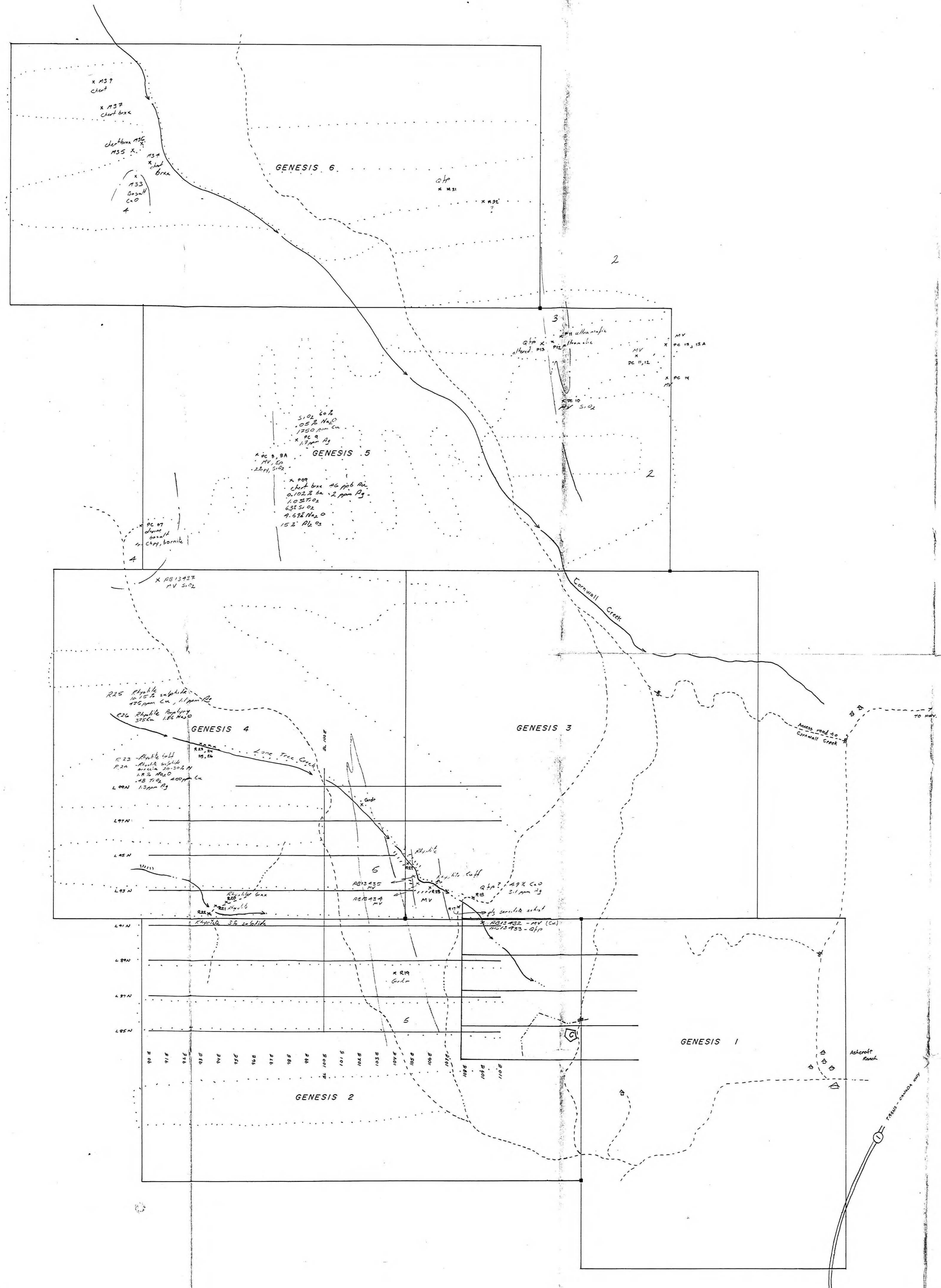
Linecutting,  
Prospecting Plan

GENESIS CENTRAL GROUP  
Kamloops Mining Division  
NTS 92 / 11, 14

June 1988

QUEST CANADA EXPLORATION SERVICES INC.





- 1 - Rhyolite flows, tuffs & breccias  
Quartz, silty, amygdaloidal  
Chert breccia  
minor sandstone and siltstone
- 2 - Cache Creek group  
rhyolite volcanic tuff
- 3 - Ultramafic
- 4 - olivine basalt
- 5 - granodiorite

- ||| rock bluff
- C corral
- ∅ range gate
- .-.- secondary roads, impassible
- X rock sample locality, approx. only  
transfer from NTS 1:50,000
- ~ major creek
- .-.- claim lines, cut grid lines
- .-.- secondary roads
- LCP

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

# 15,002

Scale 1:100,000

Samartand Resources Inc. Vancouver, B.C.

**Linecutting,  
Prospecting Plan**

**GENESIS SOUTH GROUP**  
Kamloops Mining Division  
NTS 92 1 Y 11, 14

June 1986. FIG. 3  
QUEST CANADA EXPLORATION SERVICES INC.





LEGEND

Eocene

**Ek**

Kamloops Group: basalt, andesite, dacite, rhyolite, breccia, tuff and local intercalated sandstone; conglomerate, shale.

Cretaceous

**ImKs**

Conglomerate and sandstone, derived in large part from chert-rich source terranes, minor shale with coal horizons.

Triassic

**UTni**

Nicola Group: basic to acidic, mainly volcanoclastic and intercalated argillite; 1a, acid flows and volcanoclastics, local schistose equivalents. N2 Nicola carbonate

**TJi**

undifferentiated intrusives of uncertain age

Pennsylvanian to Triassic

**PTcc1**

Cache Creek Complex: basalt, pillow basalt, diatase, gabbro.

**PTcc2**

Cache Creek Complex: ultramafic, mainly serpentinite, local gabbro.

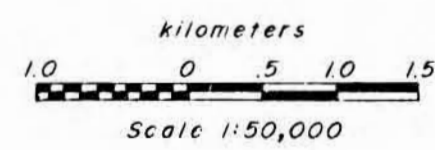
**PTcc3**

Cache Creek Complex: melange; radiolarian chert, chert-argillite matrix containing probably olistostromal limestone, chert, greenstone and ultramafic blocks and locally, acid volcanic blocks.

--- geologic boundary

— roads; paved, dirt

Geology after G.S.C. O.F. 980



BEDROCK GEOLOGY / CLAIM MAP

GENESIS CLAIMS

KAMLOOPS MINING DIVISION

NTS: 921/11, 14

May 1985.

Figure 3

SPIREX GEOSERVICES LTD.

