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# CANMARK INTERNATIONAL RESOURCES INC.

Geological Report  
on the  
Spokane Claim Group

Clinton, M. D., British Columbia

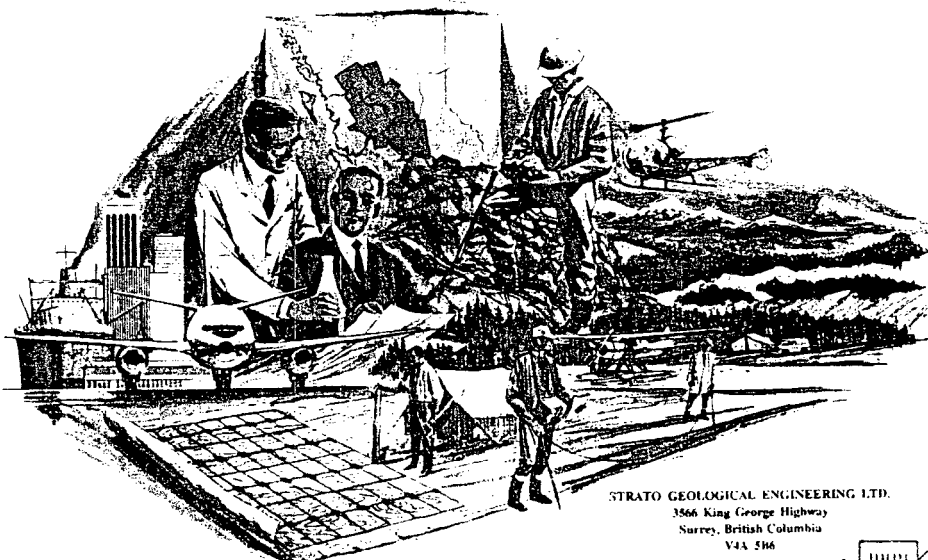
N. Latitude: 51° 05' 00" W. Longitude: 123° 25' 50"

By

F. Di Spirito, B.A.Sc., P.Eng. and D. Coffin, Dip. Tech.

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

19,466



STRATO GEOLOGICAL ENGINEERING LTD.  
3566 King George Highway  
Surrey, British Columbia  
V4A 5H6

November 28, 1989



## TABLE OF CONTENTS

1.0	INTRODUCTION	Page 1
1.1	Purpose	Page 1
1.2	Location and Access	Page 1
1.3	Property Status	Page 1
1.4	Physiography	Page 2
2.0	GEOLOGY	Page 3
2.1	Regional Geology	Page 3
2.2	Property Geology	Page 3
2.3	Spokane Showing	Page 4
2.4	New Showings	Page 5
2.5	Syndicate Showings	Page 6
3.0	CONCLUSIONS AND RECOMMENDATIONS	Page 8 7
4.0	REFERENCES	Page 9
5.0	CERTIFICATES	Page 10

## LIST OF FIGURES

- Figure 1: Location Map . . . . .follows page 1
- Figure 2: Claim Map . . . . .follows page 1
- Figure 3: Topographic Map . . . . .follows page 2
- Figure 4: Property Geology . . . . .follows page 3
- Figure 5: Mineralization Spokane Showing . . . . .follows page 4

## LIST OF APPENDICES

- Appendix I: Analytical Procedures
- Appendix II: Geochemical Analysis Certificate



## 1.0 INTRODUCTION

### 1.1 Purpose

At the request of Canmark International Resources Inc., a program of large scale mapping and one short diamond drill test was carried out by Strato Geological Engineering Ltd. between September 5th and September 27th, 1989 on the Spokane property. The following report documents the results of that program, and makes recommendations for further work.

### 1.2 Location And Access

The property is situated on Amazon Creek, a northerly flowing tributary of Taseko River located 10 kilometers upstream of Taseko Lakes and found on NTS map 92 O/3. The property is 200 air-km North of Vancouver and 270 road km Southwest from William's Lake B.C. (Figure 1).

Road access to the property is gained by turning south from B.C. Highway 20 at Hanceville, then following the all-weather gravel road to Taseko River for a distance of 80 km and then turning south at the Taseko River Bridge to follow secondary roads along the eastern side of the Taseko Lakes. A ford crosses upper Taseko River at Granite Creek from where a road leads eight km to the Spokane showing at the head of Amazon creek. Several large creeks must be forded along the stretch of secondary road south of the Taseko River Bridge and this portion of the route is inaccessible during periods of high water or heavy snow accumulation.

### 1.3 Property Status

The property consists of three Modified Grid System Mineral claims totalling 33 units. Specifics are as follows:

Name	Record No.	Number of Units	Expiry Date
Cop 5	1988	18	April 24, 1992
N. Rose 2	879	9	September 10, 1990
Spokane	129	4	October 25, 1991



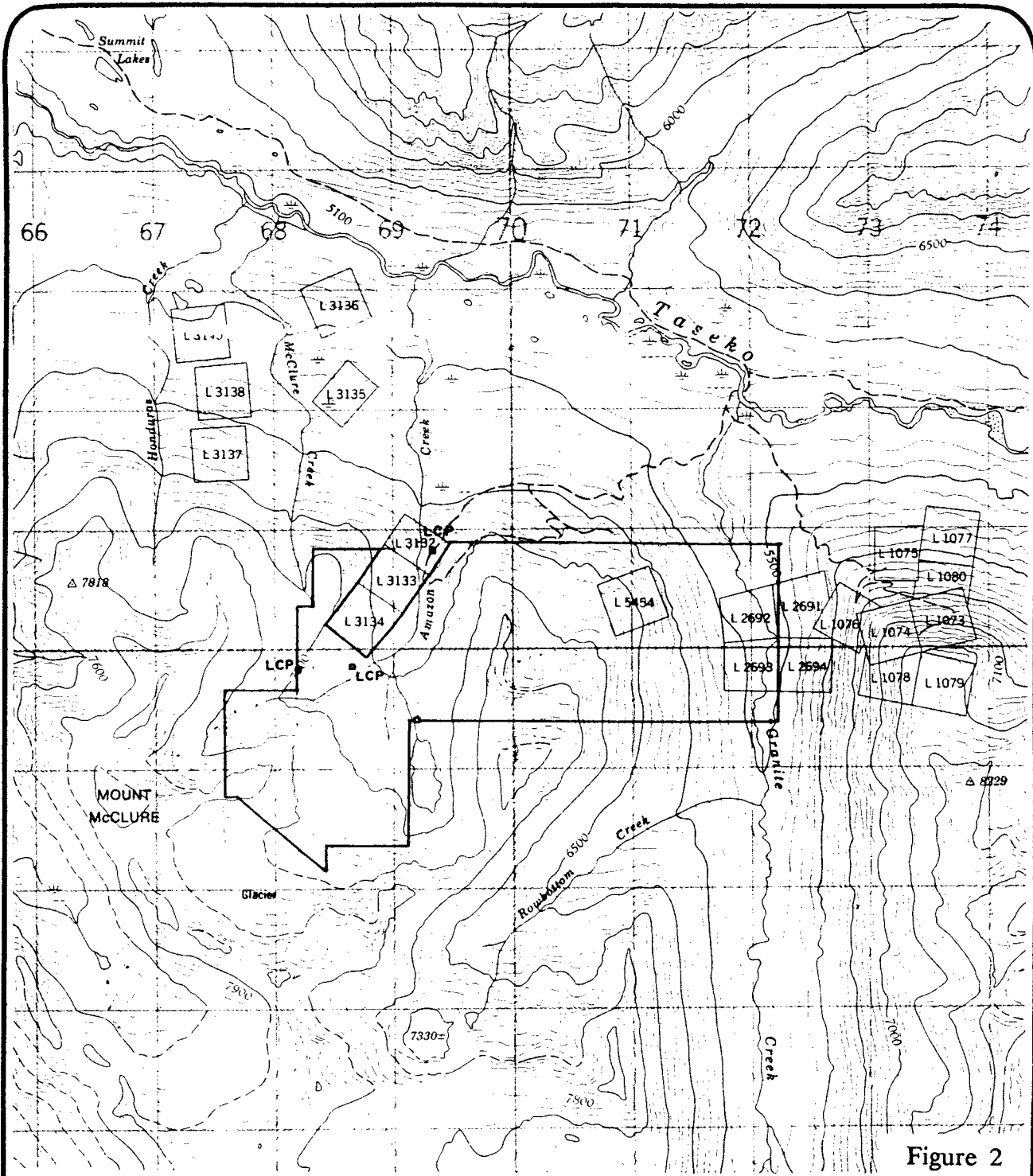


Figure 2



After: Provisional Map, Warner Pass NTS 92 O/3W  
Energy Mines & Resources, Canada

Contour Interval: 100 feet

SCALE 1: 50,000  
0 500 1000 2000 3000 METRES

**CANMARK INTERNATIONAL  
RESOURCES INC.**  
SPOKANE CLAIM GROUP  
Clinton M.D. - NTS 92O/3W

**CLAIM MAP**

November, 1989



MINERAL & PLACER RESERVE  
O/C 815, 5-4-1960  
RELEASE REQUIRED

Summit

Lakes

Powell

TO WEST SEE MAP 92 0/4 E

1000 M

CLAIM MAP 92 0/3 W

CANYON  
2407(9)  
46-3W

BC 906

BC 371

SUMMIT-2  
1862(5)  
2N X 2W

P-EAST  
1859(3)  
3N X 2E

SALLY I  
2016(6)  
4N X 6E

P-NORTH  
1860(3)  
2N X 2E

HON 1  
1394(4)  
14N X 5W

TAY I  
1084(7)  
4S X 4E

BLUFF 3  
1686(12)  
3N X 3W

GOLD - 1  
2477(12)  
2N X 5E

HON 2  
1395(4)  
14S X 5W

FELIX  
1861(3)  
3N X 3W

COP 5  
1988(4)  
3N X 6E

GOLD - 2  
2478(12)  
2S X 5E

N. ROSE 5  
1206(4)  
3N X 8E

BC 907

MAY 6  
2017(6)  
MT. McCLURE  
2S X 2E

N. ROSE-2  
879(9)  
3S X 3W

N. ROSE 4  
1205(4)  
3S X 6W

SOUSA I  
2015(6)  
3S X 6E

BC 904

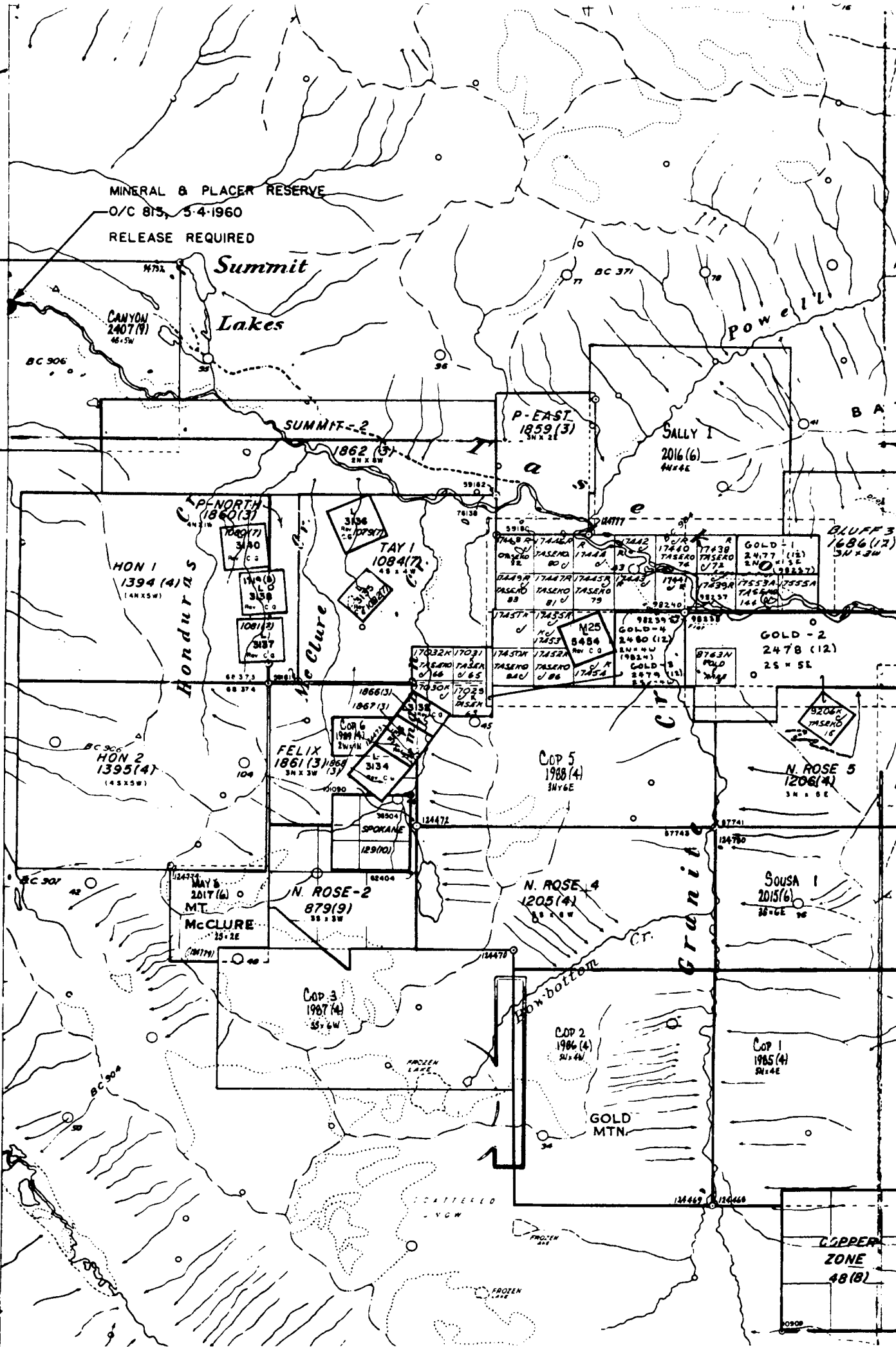
COP 3  
1987(4)  
3S X 6W

COP 2  
1986(4)  
3N X 4W

COP 1  
1985(4)  
3N X 4E

GOLD MTN.

COPPER  
ZONE  
48(8)



The claims are located in the Clinton Mining Division and may be found on Mineral Title map 93O/3W.(Figure 2). This report will be submitted for assessment credit.

As a result of an apparent fraction caused by the mislocation of the Spokane LCP, four 2-Post Mineral Claims (Basin 1-4, Record #'s 3119-22) were staked during the course of the program.

#### **1.4 Physiography**

The property occupies the western wall of and the northern half of the ridge which forms the eastern wall of the Amazon Creek valley. (Figure 3). The valley is a newly formed, northerly draining, U-shaped glacial trough; glacial ice overlies several small portions of the property. Vegetation is sparse above 2,100 m on the steep valley walls, and above 2,000 m on the upper bowl of the valley, which is largely covered by glacial debris. The lower valley is covered by stands of pine and areas of swamp.



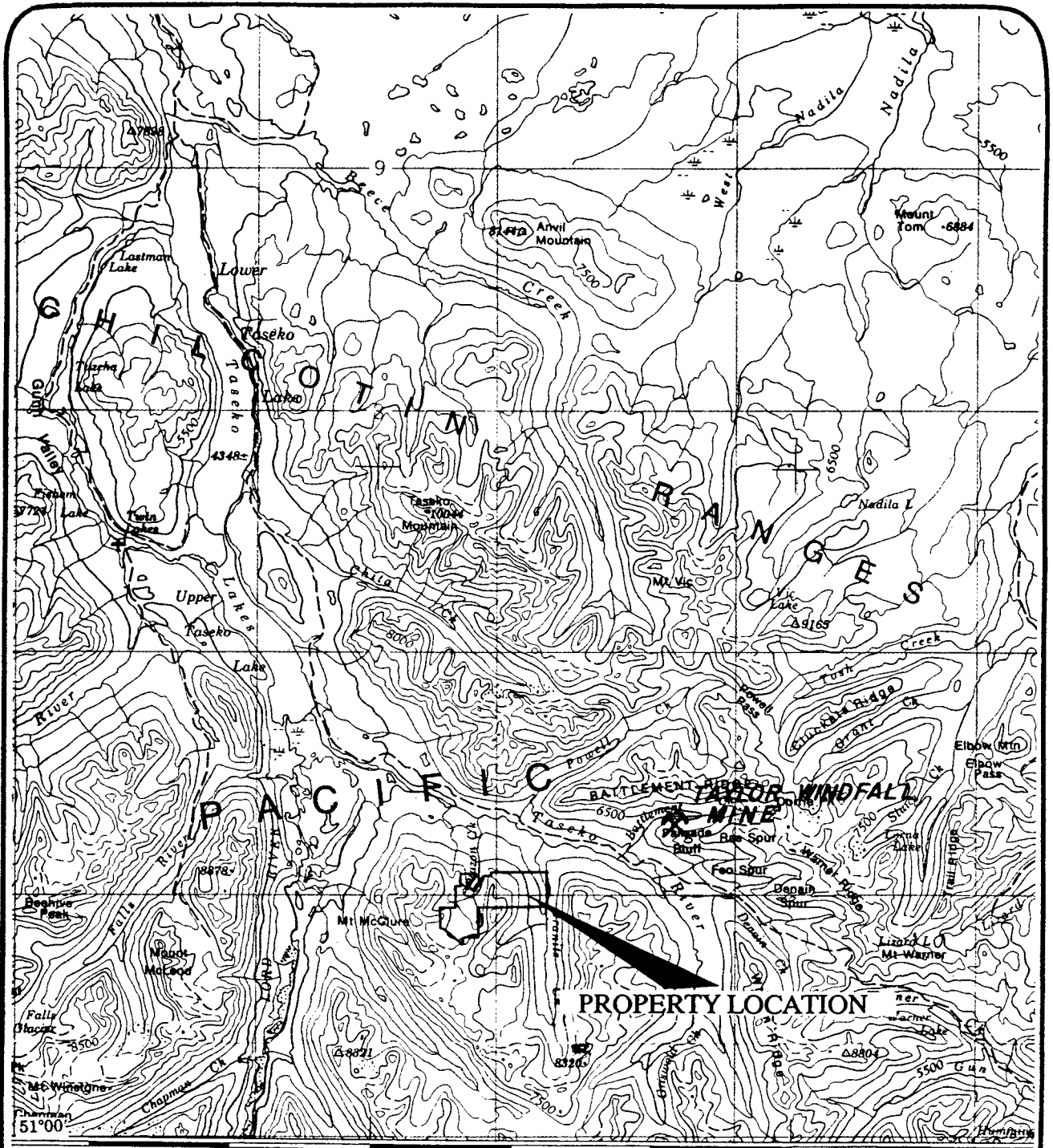
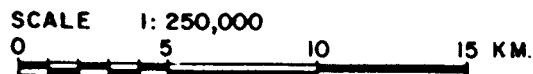


Figure 3



After: Topographic Map, Taseko Lakes NTS 92 O  
 Energy Mines & Resources, Canada  
 Contour Interval: 500 feet



**CANMARK INTERNATIONAL  
 RESOURCES INC.**

**SPOKANE CLAIM GROUP**  
 Clinton M.D. - NTS 920/3W

**TOPOGRAPHIC MAP**

November, 1989



## 2.0 GEOLOGY

### 2.1 Regional Geology

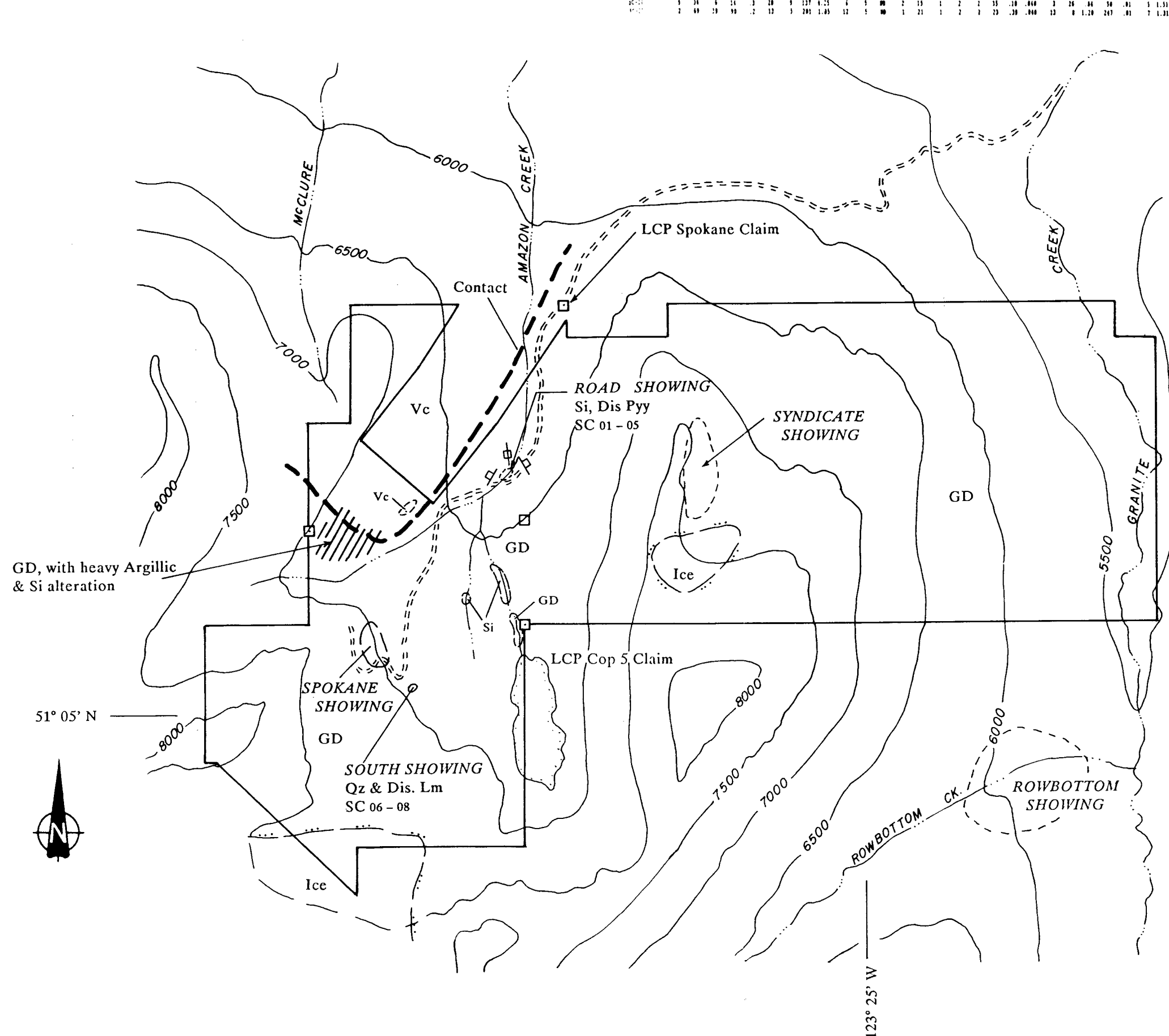
The property sits along the contact between the intermediate flow and clastic rocks of the middle Cretaceous Kingsvale assemblage, and of granodioritic to dioritic rock of the Cretaceous Coast Batholith. In the property area the contact between these units has been hydrothermally altered along a ten km section to fine grained silica, sericite and clay minerals, and to areas of finely disseminated pyrite, pyrrhotite and chalcopyrite. This zone, which is up to 3 km wide, has usually been considered an alteration product of the volcanic rocks. More recent information indicates that at least part of the zone results from the alteration of the granodiorite. In addition to this regional alteration there are numerous areas of "porphyry" and breccia mineralization, including the Spokane and Syndicate showings, within the granodiorite.

### 2.2 Property Geology

Except for it's northwest corner, the property is almost completely contained within Coast granodiorite. (Figure 4) Within the Coast range pluton the rock is equigranular, medium to coarse grained, hornblende/magnetite granodiorite to quartz diorite. Some of the free silica in otherwise unaltered quartz diorite may be of secondary origin. In areas the granodiorite has been altered to milky, fine grained silica, plus or minus disseminated pyrite or pyrrhotite, which is flanked by partial alteration to smokey quartz and chloritized feldspar (see "New Showings", below). Two prominent joint sets were seen over the entire area examined. The first trends northeasterly and dips moderately to the southeast, while the second trends northwesterly and dips moderately to steeply southwest. A third joint set trending northerly and dipping subvertically is seen in some areas, particularly proximal to areas of silica replacement.

From brief examinations of the volcanics, which are highly weathered, the rock would appear to be fine grained mafic tuff. Large sections have been altered to massive goethite, some of which was examined during the early part of the century as bulk iron deposits. There is no information in the literature to indicate an extensive testing for gold.

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Bi	Co	Ni	Fe	Al	N	As	Sr	Ca	Si	Y	Ca	F	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Sum
SC-01	2	59	18	18	2	66	56	86	6.68	22	5	0.01	2	20	1	3	2	22	.27	.036	4	14	22	13	.01	12	.75	.01	.00	2	5		
SC-02	2	87	2	29	3	62	29	261	6.88	1	5	0.01	2	42	1	2	2	32	.38	.046	4	30	29	22	.01	12	2.10	.01	.25	1	15		
SC-03	3	101	22	54	2	35	19	257	6.89	7	5	0.01	1	30	1	3	2	90	.36	.048	2	25	89	17	.01	18	2.20	.01	.22	2	17		
SC-04	5	14	6	14	3	28	9	127	1.25	6	5	0.01	2	15	1	2	2	55	.18	.048	3	26	84	58	.01	5	1.51	.02	.10	2	1		
SC-05	2	59	19	19	2	12	5	281	1.85	12	5	0.01	1	21	1	2	1	23	.30	.048	13	8	1.28	267	.01	7	1.31	.02	.12	1	2		



- LEGEND**
- GD Granodiorite
  - Vc Volcanics
  - Si Silica
  - Qz Crystalline Quartz
  - Lm Limonite
  - Pyy Pyrrhotite
  - SC 01-05 1989 Rock Sample (1 to 5)
  - Mineral Showing
  - ==== Road
  - ⌒ Lake
  - Glacial Ice
  - ▭ Property Boundary
  - LCP - Legal Corner Post

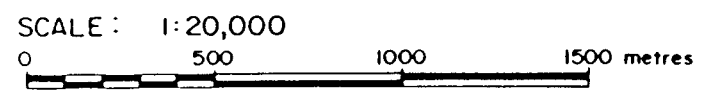


FIGURE 4

**CANMARK INTERNATIONAL RESOURCES INC.**

**SPOKANE CLAIM GROUP**  
Clinton M.D. - NTS 92 O/3W

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**PROPERTY GEOLOGY**

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To accompany a report by:  
D. Coffin, & F. Di Spirito, P. Eng.

Drawn by: DC/GT      Date: November, 1989

### 2.3 Spokane Showing

The Spokane showing is an area of quartz pyrite, chalcopyrite and gold mineralization within the granodiorite. (Figure 5) The showing was extensively trenched by Cominco during the 1920's as a gold prospect, and underwent drill programs by Canadian Explorations Ltd. in 1956, by Scurry Rainbow Oil in 1969 and by Sumitomo Metal Corp. in 1970 as a potential large tonnage copper prospect. Several previous authors have noted that at the Spokane, unlike other showings in the area, copper and gold values are not directly related to each other.

The old trenches, although quite recognizable, are largely filled in. The original showings are two northerly trending veins which appear from dump material to be intergrown quartz crystals up to 10 cm. in length with minor disseminated oxides after pyrite and chalcopyrite which are flanked by areas of massive fine grained milky silica replacement and up to 35% disseminated pyrite and/or chalcopyrite in grains up to 4 mm and minor amounts of sericite. Away from the veins, granodiorite has been altered by smokey silica and replacement of feldspars by chlorite. Flanking these veins on the east is a 75 metre wide zone in which silicification and knots of massive chalcopyrite and pyrite up to 10 cm. long are found at joint intersections and from which high grade gold values have been reported. Although gold values tend to be reported from north-easterly trending joints, the overall pattern of high grade gold (plus 0.25 oz/ton) appear to form a northwesterly trend. Prospecting in 1989 along the southern extension of this northwesterly trend located an isolated area of crystalline and disseminated quartz replacement (the "South" showing) 250 metres southeast of the main zone. Possible extensions to the northwest are covered by talus and glacial debris.

The showings appear to be the result of fluid/vapour invasion centered on the northerly trending veins which filled open spaces and then replaced peripheral material. The material at the northerly trending veins, especially the areas of higher copper content, have undergone complete replacement and it is tentatively assumed that peripheral mineralization and alteration to the east and, to a lesser extent, to the west of these veins occurred partially as a result of a blockage of the northerly trending systems. Such a hypothesis assumes that gold values are related to the latter phases of the hydrothermal

**LEGEND**

- GD Granodiorite (unaltered)
- Alt GD Granodiorite with bleaching and Chloritized Feldspare
- Qz Crystalline Quartz
- Si Fine Grained Silica Replacement
- Py Pyrite
- Cpy Chalcopyrite
- Lm Limonite
- 1989 Diamond Drill Hole
- XSC-06 1989 Rock Sample
- △ Samples with +.25 oz./t Au (after various sources)
- ▨ Area of High Grade Cu
- ▩ Boundary of high Au results
- Outcrop
- ▨ Cliff
- ▬ Road
- ▬▬▬ Trail
- ▬▬▬▬ Creek
- 2080— Topographic Countours (15 meter intervals) After Richmond, 87

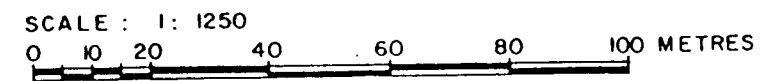
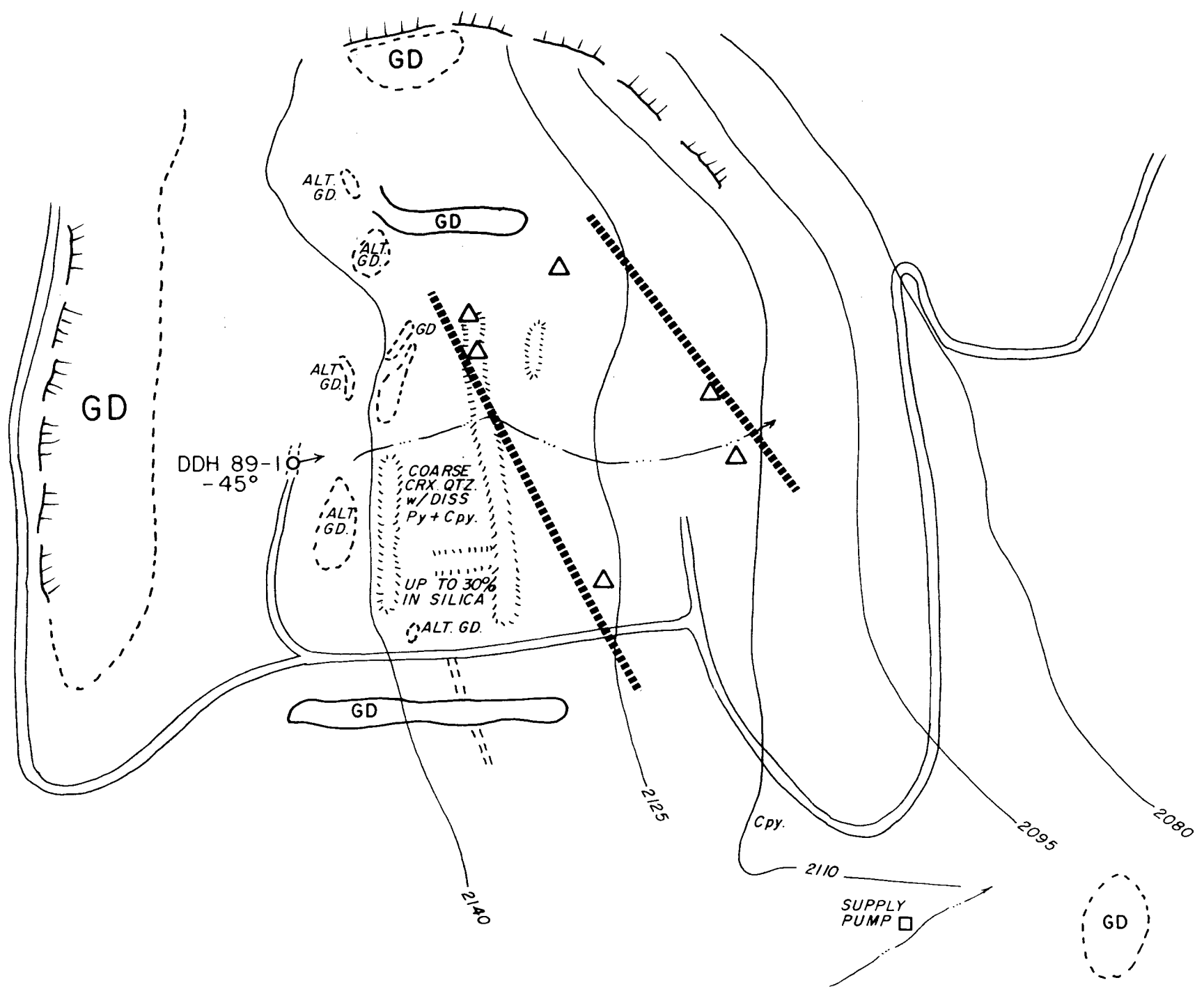


FIGURE 5

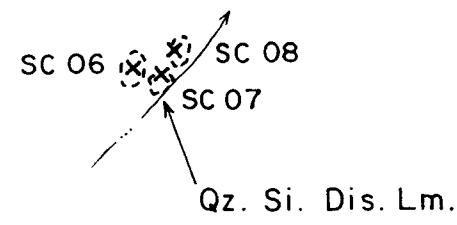
ACKS ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716  
**GEOCHEMICAL ANALYSIS CERTIFICATE**

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
 THIS LEACH IS PARTIAL FOR MN FE SE CA P LA CR PG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.  
 SAMPLE TYPE: ROCK AUP ANALYSIS BY ACID LEACH/AA FROM 10 GR SAMPLE.

DATE RECEIVED: OCT 4 1989 DATE REPORT MAILED: Oct 10/89 SIGNED BY: D. JOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS  
 Strato Geological Ltd. PROJECT SPOKANE File # 89-4071

SAMPLE	No	Cu	Pd	Zn	Ag	Hg	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	U	AUP
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM	%	PPM	%	PPM	%	%	%	%	PPM	PPM
SC-06	2	15	3	59	.3	9	5	464	1.11	11	5	ND	1	41	5	2	6	2.34	.005	2	5	.93	786	.01	6	.08	.02	.05	1	1	
SC-07	3	285	11	56	.5	10	5	330	1.45	3	5	ND	4	12	6	2	10	.97	.007	2	8	.06	73	.01	7	.20	.02	.09	3	2	
SC-08	1	178	2	45	.1	10	6	485	1.91	6	5	ND	3	34	2	2	9	3.19	.004	2	6	.28	512	.01	10	.10	.02	.06	2	1	

South Showing



**CANMARK INTERNATIONAL RESOURCES INC.**

**SPOKANE CLAIM GROUP**  
Clinton M.D. - NTS 92 O/3W

**MINERALIZATION SPOKANE SHOWING**

To accompany a report by:  
D. Coffin, & F. Di Spirito, P. Eng.

Drawn by: DC/GT Date: November, 1989

invasion, largely after blockage of the main system, and therefore resulting in the apparent segregation of values. It should be noted that higher grade gold may include up to 2% copper and that the areas of poor gold values include up to 10% copper.

Diamond drill hole 89-1 was spotted 20 metres west of the northerly veins and drilled at 090° at a dip of -45° in order to test the veins and peripheral material. Drilling was discontinued at 8.7 metres because of equipment problems. The bottom three metres of the hole contained moderate silicification and chloritic alteration of feldspar within granodiorite as seen peripherally to the vein.

#### 2.4 New Showings

Large scale mapping of the property resulted in the discovery of three areas of significant silicification. The South showing as described above is an area of crystalline quartz and silica replacement located 250 metres southeast of the Spokane showing. Three samples, SC-06 to SC-08, returned only low values in copper and gold. Although this showing appears to be isolated, it should be trenched in a manner which will help describe its relationship to the Spokane showing.

An area of fine grained silica and up to 20% finely disseminated pyrite and pyrrhotite, the Road showing, was found where the access road crosses Amazon Creek for the first time. The showing is a series of creek cuts which appear to result from erosion after the displacement of the creek by the road building. Structural planes in the alteration mirror the joint pattern seen in adjacent granodiorite, including a strong northerly trend and it appears that this rock is the result of granodiorite replacement. Five samples, SC-01 to 05, returned only low values. The trend could not be discerned from available exposure but the alteration is at least 10 metres across and open in all directions except the east.

A broad area of siliceous and sericitic alteration was found in a creek cut on the tributary which drains the tarn. Strongly defined northeasterly or northwesterly lineation is found in this material. This material may be the unit defined by Sumitomo in 1970 as a late phase rhyolite but the lineation within the material and the extent of partial replacement of the granodiorite proximal

to the material indicates that it may be an alteration zone similar to those described above. Unlike other zones this area is sulphide poor and no samples were collected.

Argillic and siliceous alteration was seen in the western portion of the Basin claims as talus. This alteration would be a portion of the regional contact zone. Textures within this material strongly indicate that it results from alteration of the granodiorite rather than volcanics.

## 2.5 Syndicate Showing

This showing is located at the top of the ridge forming Amazon Creek's eastern valley wall at an elevation of 2300 metres. The showing was not visited during the 1989 program. It is described as being an area of brecciation and silicification with disseminated pyrite and chalcopyrite within the granodiorite probably contained within a pipe-like structure. Some percussion drilling of the zone and peripheral anomalies was undertaken by Sumitomo Metal Corp. which apparently returned poor values in copper. The steep cliffs west of the Spokane showing are composed of coarse grained granodiorite which is strongly jointed by northeasterly and northwesterly trends. Areas of heavy limonite staining result from the alteration of magnetite and of pyrite on joint planes, being stronger where pyrite is more abundant.

### 3.0 CONCLUSIONS AND RECOMMENDATIONS

The Spokane showing is of interest because of the high grade metal values found there. A better understanding of the segregation between copper and gold values and the relationship between the Spokane showing and newly discovered South showing, if any, would greatly aid the spotting of future drill holes. This is best accomplished by backhoe trenching across the zone in several directions and sampling of the rock with particular regard to fracture/joint trends. From this information several samples could be collected for detailed mineralogical studies in order to determine relative age relationships and particle size of gold grains. Trenching should also be conducted along the trend of planned drilling in order to allow for correlative sequences on the same sections. Early drilling should test potential depth extensions of the showings and may be best accomplished, if the trend allows, from the lower switchbacks on the access road.

A grid should be emplaced over the western portion of the property with east- west trending lines and a detailed magnetometer survey conducted. Areas of silicification devoid of pyrrhotite should be recognizable as magnetic low; areas of relatively high response may represent pyrrhotite enhancement and should be treated as such. Dependent on location , anomalous areas should be either trenched or detailed using induced polarization. The showing areas should act as a guide in these studies.

The new showings should be trenched with a backhoe after completion of a magnetometer survey. Although overburden is felt to be generally shallow, the presence of numerous large blocks necessitates the use of fairly large equipment and possibly blasting.

Detailed mapping of the Syndicate showing and the sidehill area to the east of it should be carried out during mid summer, with particular detail to structural trends and possible gold deposition.



## Estimated Costs For The Proposed Program

### Phase I

Grid Emplacement, Detailed Mag Survey: 30 lines @ 100m spacing, 1km each over open terrain with allowance for detail to 10 m station spacing and in-fill lines @ 50 metres.

Geological mapping, 1:5000 plus detail, allow 25 days including sampling known showings.

Equipment trenching, allow 15 days with a large excavator, including anticipated anomalies

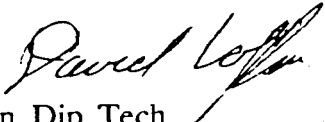
The above three items would total	\$ 40,000
I.P. follow up as required - say 15 days	16,800
Mob & Demob	5,000
Report and Drafting	<u>10,000</u>
	71,800
Contingency @ 10% approximately,	<u>7,200</u>
Total Phase I	<u>\$ 79,000</u>

### Phase 2

Drilling, contingent upon the results of Phase I, allow minimum 2,000 feet with a 500 foot downhole capability. Dependent on results on particle size analysis a large core size or tricone sampling may be advisable.

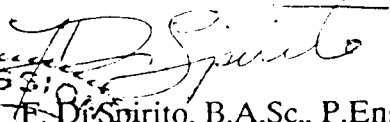
\$100,000

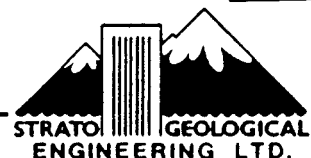
Respectfully submitted  
Strato Geological Engineering Ltd.

  
D. Coffin, Dip. Tech.

November 28, 1989.



  
F. Di Spirito, B.A.Sc., P.Eng.



#### 4.0 REFERENCES

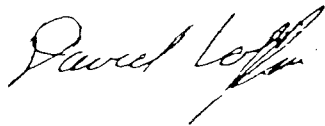
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## 5.0 CERTIFICATE

I, David J. Coffin, residing at 404 – 1666 Pendrell Street, Vancouver, British Columbia, Canada do hereby certify the following:

1. I attended the Haileybury School of Mines from 1975 to 1977 and have taken additional courses in Geography and Geochemistry.
2. I have practised my profession since 1974 in Canada and the Western United States.
3. This report is based on field examinations I performed and supervised on the property from September 5<sup>th</sup> to September 27<sup>th</sup>, 1989.
4. I have no direct indirect or contingent interest, nor do I expect to receive such interest, in the securities or properties of Canmark International Resources Inc.

DATED at Surrey, British Columbia this 28<sup>th</sup> day of November, 1989



David J. Coffin, Dip. Tech.

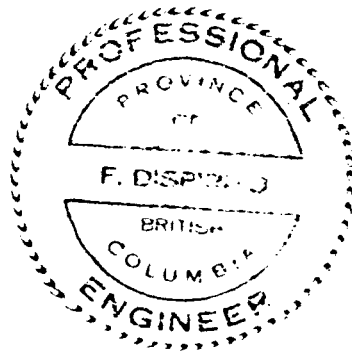
I, FRANK DISPIRITO, of 4431 Quebec Street, of the city of Vancouver, Province of British Columbia, do hereby certify that:

1. I graduated in 1974 from the University of British Columbia, with a bachelor of Applied Science in Geological engineering.
2. Since graduation I have been engaged in mineral and hydrocarbon exploration throughout Canada and the United States.
3. I am a registered member, in good standing, of the association of Professional Engineers of British Columbia.
4. This report is based on data collected by Strato Geological Engineering Ltd.
5. I have not received, nor do I expect to receive, any interest, direct, indirect or contingent, in the securities or properties of Canmark International Resources Inc., and that I am not an insider of any company having an interest in the Spokane Claim Group or any other property in the area.
6. Permission is herewith granted to use this report for the purpose of a Prospectus or Statement of Material Facts.

DATED at Surrey, British Columbia this 28<sup>th</sup> day of November, 1989

*F. Di Spirito*

F. DiSpirito, B.A.Sc., P..Eng.



**TIME-COST DISTRIBUTION**

Canmark International Resources Inc.

Geological mapping, trenching, sampling, road work (drilling) program on the Spokane Syndicate Property, Clinton M.D., Taseko River Area, B. C.

Work was carried out during the period September 4 to December 1, 1989.

Personnel

Frank DiSpirito - P. Eng.	Senior Supervisor
David Coffin	Geologist, Supervisor
Can-Am Services	
D. L. Walker, Contractor	Drilling
Newmac Industries Ltd.	
James MacNeil	Bulldozing
George Toop	Draftsman

Cost Distribution

Labour (Sept. 4 to 15, 1989; 12 mandays)	\$ 6,450.00
Room and Board (12 mandays)	1,365.00
Transportation	2,405.00
Drilling (Mod, Demob etc...)	11,500.00
Geological Mapping, Drafting, and Report	2,200.00
Miscellaneous	<u>900.00</u>
<b>TOTAL</b>	<b><u>\$ 24,820.00</u></b>

Signed *H. Lewis*  
 Strato Geological Engineering Ltd.

**SUB-RECORDER**  
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 VANCOUVER, B.C.

**APPENDIX I**  
**Analytical Procedures**



ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6

Telephone : 253-3158

GEOCHEMICAL LABORATORY METHODOLOGY - 1985

Sample Preparation

1. Soil samples are dried at 60°C and sieved to -80 mesh.
2. Rock samples are pulverized to -100 mesh.

Geochemical Analysis (AA and ICP)

0.5 gram samples are digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Extracted metals are determined by :

A. Atomic Absorption (AA)

Ag\*, Bi\*, Cd\*, Co, Cu, Fe, Ga, In, Mn, Mo, Ni, Pb, Sb\*, Tl, V, Zn  
(\* denotes with background correction.)

B. Inductively Coupled Argon Plasma (ICP)

Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cu, Cr, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W, Zn.

Geochemical Analysis for Au\*

10.0 gram samples that have been ignited overnight at 600°C are digested with 30 mls hot dilute aqua regia, and 75 mls of clear solution obtained is extracted with 5 mls Methyl Isobutyl Ketone.

Au is determined in the MIBK extract by Atomic Absorption using background correction (Detection Limit = 1 ppb).

Geochemical Analysis for Au\*\*, Pd, Pt, Rh

10.0 - 30.0 gram samples are subjected to Fire Assay preconcentration techniques to produce silver beads.

The silver beads are dissolved and Au, Pd, Pt, and Rh are determined in the solution by graphite furnace Atomic Absorption. Detections - Au=1 ppb; Pd, Pt, Rh=5 ppb

Geochemical Analysis for As

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml. As is determined in the solution by Graphite Furnace Atomic Absorption (AA) or by Inductively Coupled Argon Plasma (ICP).

Geochemical Analysis for Barium

0.25 gram samples are digested with hot NaOH and EDTA solution, and diluted to 20 ml.

Ba is determined in the solution by ICP.

Geochemical Analysis for Tungsten

0.25 gram samples are digested with hot NaOH and EDTA solution, and diluted to 20 ml. W in the solution determined by ICP with a detection of 1 ppm.

Geochemical Analysis for Selenium

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml with H<sub>2</sub>O. Se is determined with NaBH<sub>3</sub> with Flameless AA. Detection 0.1 ppm.



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Geochemical Analysis for Uranium

0.5 gram samples are digested with hot aqua regia and diluted to 10 ml.

Aliquots of the acid extract are solvent extracted using a salting agent and aliquots of the solvent extract are fused with NaF,  $K_2CO_3$  and  $Na_2CO_3$  flux in a platinum dish.

The fluorescence of the pellet is determined on the Jarrel Ash Fluorometer.

Geochemical Analysis for Fluorine

0.25 gram samples are fused with sodium hydroxide and leached with 10 ml water. The solution is neutralized, buffered, adjusted to pH 7.8 and diluted to 100 ml.

Fluorine is determined by Specific Ion Electrode using an Orion Model 404 meter.

Geochemical Analysis for Tin

1.0 gram samples are fused with ammonium iodide in a test tube. The sublimed iodine is leached with dilute hydrochloric acid.

The solution is extracted with MIBK and tin is determined in the extract by Atomic Absorption.

Geochemical Analysis for Chromium

0.1 gram samples are fused with  $Na_2O_2$ . The melt is leached with HCl and analysed by AA or ICP. Detection 1 ppm.

Geochemical Analysis for Hg

0.5 gram samples is digested with aqua regia and diluted with 20% HCl.

Hg in the solution is determined by cold vapour AA using a F & J scientific Hg assembly. An aliquot of the extract is added to a stannous chloride / hydrochloric acid solution. The reduced Hg is swept out of the solution and passed into the Hg cell where it is measured by AA.

Geochemical Analysis for Ga & Ge

0.5 gram samples are digested with hot aqua regia with HF in pressure bombs.

Ga and Ge in the solution are determined by graphite furnace AA.

Detection 1 ppm.

Geochemical Analysis for Tl (Thallium)

0.5 gram samples are digested with 1:1  $HNO_3$ . Tl is determined by graphite AA. Detection .1 ppm.

Geochemical Analysis for Te (Tellurium)

0.5 gram samples are digested with hot aqua regia. The Te extracted in MIBK is analysed by AA graphite furnace. Detection .1 ppm.

Geochemical Whole Rock

0.1 gram is fused with .6 gm  $LiBO_2$  and dissolved in 50 mls 5%  $HNO_3$ . Analysis is by ICP or M.S. ICP gives excellent precision for major components. The M.S. can analyze for up to 50 elements.



**APPENDIX II**  
**Geochemistry Assay Certificates**

## GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
 THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.  
 - SAMPLE TYPE: ROCK AU\* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: OCT 4 1989 DATE REPORT MAILED: *Oct 10/89* SIGNED BY: *C. Long* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Strato Geological Ltd. PROJECT SPOKANE File # 89-4071

SAMPLE#	Mo PPM	Cu PPM	Pb PPM	Zn PPM	Ag PPM	Ni PPM	Co PPM	Mn PPM	Fe %	As PPM	U PPM	Au PPM	Th PPM	Sr PPM	Cd PPM	Sb PPM	Bi PPM	V PPM	Ca %	P %	La PPM	Cr PPM	Mg %	Ba PPM	Ti %	B PPM	Al %	Na %	K %	W PPM	Au* PPB
SC-06	2	15	3	59	3	9	5	464	1.11	11	5	ND	1	41	1	5	2	4	2.54	.005	2	5	.93	786	.01	6	.08	.02	.05	1	1
SC-07	3	285	11	56	5	10	5	330	1.45	3	5	ND	4	12	1	6	2	10	.97	.007	2	8	.06	73	.01	7	.20	.02	.09	3	2
SC-08	1	178	2	45	1	10	6	485	1.91	6	5	ND	3	34	1	2	2	9	3.19	.004	2	6	.28	512	.01	10	.10	.02	.06	2	1

## GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
 THIS LEACH IS PARTIAL FOR MN PB SR CA P LA CE MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.  
 - SAMPLE TYPE: ROCK AU\* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: SEP 19 1989

DATE REPORT MAILED: Sept 22/89

SIGNED BY: *C. Long* D. TOYK, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Strato Geological Ltd.

File # 89-3740

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au*
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	%	PPM	PPM	%	PPM	%	PPM	%	%	%	PPM	PPM
SC-01	2	50	10	18	.2	66	50	86	6.40	12	5	ND	2	20	1	3	2	22	.27	.036	4	14	.22	13	.01	12	.75	.01	.08	1	5
SC-02	2	87	10	29	.3	62	29	241	6.08	8	5	ND	2	42	1	2	2	32	.30	.046	4	30	.79	22	.01	12	2.10	.01	.25	1	15
SC-03	3	101	10	54	.1	35	19	257	6.49	7	5	ND	1	30	1	3	2	40	.36	.084	2	25	.89	17	.01	14	2.20	.01	.32	1	17
SC-04	5	34	6	14	.3	20	9	137	4.25	6	5	ND	2	15	1	2	2	35	.10	.040	3	26	.84	50	.01	5	1.51	.02	.10	2	1
SC-05	2	69	39	90	.2	13	5	281	1.85	12	5	ND	1	21	1	2	2	23	.39	.040	13	8	1.20	247	.01	7	1.31	.02	.12	1	2
STD C/AU-R	18	57	41	132	6.7	67	30	1042	3.82	43	17	7	37	48	18	16	21	59	.45	.092	38	56	.89	176	.07	34	1.81	.06	.14	13	510