ARIS SUMMARY SHEET

District Geologist, Kamloops

Off Confidential: 92.09.03

ASSESSMENT REPORT 21861 MINING DIVISION: Clinton **PROPERTY:** HW9 LONG 124 49 00 LOCATION: LAT 51 32 30 10 5711408 374015 UTM NTS 092N10W HW 9 CLAIM(S): Ottarasko Mines **OPERATOR(S):** Berniolles, L. AUTHOR(S): 1991, 15 Pages **REPORT YEAR:** COMMODITIES SEARCHED FOR: Gold Mesozoic, Volcanics, Sediments, Faults, Alteration, Quartz veins **KEYWORDS:** Sulphides WORK DONE: Prospecting 500.0 ha

PROS

Map(s) - 3; Scale(s) - 1:125 000,1:12 500,1:5000

		1 Lech	IMMI	
ACTION				
	ب ب ب	н. 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914 - 1914		
·				

PROSPECTING REPORT - HW9 CLAIM

CLINTON MINING DIVISION

NTS LOCATION 92N/10

LATITUDE 51° 32' 30" LONGITUDE 124° 49'

OWNER/OPERATOR: LOUIS BERNIOLLES AUTHOR OF REPORT: LOUIS BERNIOLLES

DATE SUBMITTED: NOVEMBER 25, 1991

GEOLOGICAL BRANCH ASSESSMENT REPORT

361

TABLE OF CONTENTS

	Page
INTRODUCTION	3
Location of property	3
Access to the claim	3
Index Map (Map #1)	4
Physiography and climate	5
Property definition	5
Summary of work done	6
DETAILED TECHNICAL DATA AND INTERPRETATION	6
Purpose of investigation	6
Description of observations made during the investigation	6
Sample descriptions	8
Geochemical Lab Report, 91-4385, P.1, 11 rock samples	9
Stream sediment survey	10
Geochemical Lab Report, 91-4385, P.2, 11 silt samples	11
CONCLUSIONS AND RECOMMENDATIONS	12
REFERENCES	13
ITEMIZED COST STATEMENT	14
STATEMENT OF QUALIFICATIONS	15
MAP #2 (Regional Geology)(in pocke	t)
MAP #3 (PLAN MAP, showing location of samples)(in pocke	t)
MAP #4 (Stream Survey, Locations and Results) (in pocke	t)

INTRODUCTION

Location of property. The HW9 claim covers 500 hectares (20 units), and is located at the headwaters of Nude (Niut) Creek, in the Niut Range of the Coast Mountains (Map 92N/10).

Access to the claim. The most practical way to reach the HW9 claim is by helicopter, since the nearest road is more than 20 km away; a helicopter service is available at Bluff Lake, approximately 20 km due north of the property. From Williams Lake, access to the area is by road to Tatla Lake, 225 km west of Williams Lake on Highway 20, then a further 25 km by good gravel road southward to Bluff Lake, where Whitesaddle Air Services has its base. Tatla Lake is a small unincorporated community; local businesses and services include a hotel, a motel, 2 restaurants, a general store, a garage and a nursing station.



Section of B.C. Road Map showing location of Index Map area.

3 -



Physiography and climate. The HW9 claim is located within the east margin of the Pacific Ranges of the Coast Mountains; the abrupt mountainous terrain shows the effects of past glaciation, and numerous glaciers and icefields can still be found above 2000 m. Elevations on the claim vary from approximately 1500 m in the southeast to 2600 m along the northern boundary. Mount Waddington, the highest point in British Columbia's Coast Mountains (4016 m) is situated 35 km to the west of the claim.

The climate of the area is relatively moderate in view of the altitude. Snow usually begins to accumulate in October or early November, and remains until May at lower elevations, and as late as mid July above 2000 m. Timberline is at approximately 1800 m.

Property definition. The HW9 claim (record No. 3414, Clinton Mining Division) was staked by the author on July 29 and July 30, 1990. This claim is a western extension of a group of claims (HW1, HW4, HW5 and HW6) which was prospected extensively during the summer of 1989 (AR 19355).

The HW9 claim is located on Mesozoic volcanic and sedimentary rocks situated between the Upper Cretaceous Coast Plutonic Complex (to the west) and the Tchaikazan fault, a northwest extension of the fault system in the Bridge River area (to the east). The local geology was mapped by H. W. Tipper in 1967; the most recently published geological map of the area was compiled by G.S.C. geologists in 1985 (Open File 1163, Roddick & Tipper). A section of this map showing the boundaries of the HW9 is included. (Map #2, in pocket).

As mapped in Open File 1163, the HW9 claim is underlain by Upper Triassic volcanics thrust over a relatively thin horizon of Upper Triassic shales, limestones and volcanic tuffs which, in turn, lie upon more Upper TRiassic volcanics. The area is characterized by an abundance of N.W. trending dykes and by a N.E. trending pattern of thrust faulting.

The target of this exploration program was gold in quartz veins, lenses or stockworks. Several bodies of quartz were located and sampled in situ. These bodies were most often lenses or clusters of veins or veinlets sub-parallel to the planes of thrust faulting (strike N.W., shallow dip N.E.), and were on the whole poorly mineralized. However, two subhorizontal quartz veins gave interesting analysis results. One, located near the eastern boundary of the claim, has an exposed strike length of 16 m and an average width of 1 m; a composite chip sample from the exposed outcrop assayed at .46% arsenic (in arsenopyrite) and a slightly anomalous gold content of 75 PPB. The second vein, to the centre-west of the claim, is a much larger structure in outcrop and probably exceeds 100 m in length and 1.5 m in width at its widest;

- 5 -

it is however located in an extremely exposed location, under the terminal front of a very active hanging glacier which triggers off several ice avalanches every day during the summer, so that measurements are roughly estimated visually and with the aid of a Brunton, and the sampling is limited to material which has been broken off the vein by glacial action and carried a few hundred feet downslope. This vein gives values of up to 2.43 gr/tonne Au in quartz material containing finegrained pyrite. The absence of arsenopyrite is to be noted.

Summary of work done. All accessible areas of the 500 ha. property were prospected by a three-person team, for a total of 42 man/days, over the period August 5 to September 1, 1991. Eleven rock samples were sent to Acme Analytical Laboratories for multielement geochemical ananlysis. Sampling locations will be found on Map # 3 (in pocket) of the present report.

In addition to this prospecting and rock sampling program, stream sediment sampling of the various creeks on the claim was performed. Eleven samples were sent for multielement analysis, and the results are examined and summarized in a separate section of this report.

DETAILED TECHNICAL DATA AND INTERPRETATION

Purpose of investigation. The HW9 claim was staked in 1990 as a western extension of a claim block, centered on Mt. Ottarasko, on which several occurrences of gold and goldcopper mineralization have been found. The purpose of the current program of exploration was to investigate the possibility that this mineralized trend might continue to the west and northwest in the direction of the Homestake gold prospect (M.I. #092N-35) and of the Blackhorn gold prospect (M.I. #092N-19). The main showings on these properties are located within 3000 m of the northern boundary of the HW9 claim.

Description of observations made during the investigation. Map #3 (in pocket), scale 1/5000th, shows the surficial geology of the claims and the location of the samples which were sent for analysis, as well as the nature of these samples (bedrock outcrop, sub-outcrop or localized float, glacier-transported float, stream sediment).

- 6 -

Starting from the eastern boundary of the claim, we have a zone of sub-horizontal quartz-filled fractures related to thrust faulting; the quartz structures, some of which had been sampled previously in a regional program, are generally poorly mineralized and of small extent. A new discovery in this area was found in a locality previously covered by snow during the regional program. A rusty-weathering sub-horizontal quartz vein is exposed at altitude 7100' for 16 metres of strike, maximum width 1.10 m, and contains abundant arsenopyrite in clusters; it is slightly anomalous in gold (75 PPB). HW-91-1

Near the northeastern corner of the claim, the country rock is a slightly pyritized greenschist with minor indications of copper mineralization (malachite stains). HW-91-2

Moving west, two samples of quartz from large to very large angular float blocks were taken. The source structure was not located but the float probably originated on the steep slopes just north and uphill from the sample sites. In one case the quartz contains chloritized fragments of wall rock with no indication of mineralization, while the other occurrence contains minor sulphides and malachite, and assays at 290 PPB Au. HW-91-5, HW-91-6

To the northwest, a small area of quartz stockwork is located in grey schist, below the level of thrust faulting which brings the Ottarasko volcanics onto Upper Triassic shales and limey sediments. The quartz is poorly mineralized; the grey schist shows minor sericite and sulphide alteration. HW-91-7

To the southwest, the glacier which originates to the east of Rusty Peak transports heavily pyritized sediments (conglomerate, shale). A composite sample of these rocks showed no economic mineralization. HW-91-8

Moving north, a boulder train of large quartz float blocks was located and traced back to the discharge point of a hanging glacier. The quartz is white to beige and contains inclusions of grey iron sulphides, including pyrrhotite. The source structure is a sub-horizontal vein of approximate length 100 m and maximum width 1.20 to 1.50 m; this structure cannot be sampled in place because of its location immediately under the discharge point of a very active hanging glacier; the glacier is effectively excavating the vein from the bluffs. Samples taken from float blocks assayed up to 2.4 gr/tonne Au. HW-91-4

Just south and downhill from the above, quartz lenses and veinlets are located below the shale strata which mark the level of thrust faulting. These structures contain no sulphides or gold. HW-91-3

- 7 -

The quartz boulders originating from HW1-91-4 indicate that the vein is situated in heavily pyritized conglomerate. A composite sample of this wallrock was taken; no gold values are associated with this conglomerate. HW-91-9

Composites of the mineralized quartz originating from HW1-91-4 were selected into sulphide-poor and sulphide-rich fractions for analysis. The gold content appears to be entirely associated with the iron sulphides. HW-91-10, HW-91-11

Sample descriptions.

- HW-91-1 Quartz vein composite. Quartz is rusty weathering and contains abundant arsenopyrite. Vein length 16 m, width 80 cm - 110 cm.
- HW-91-2 .Greenschist with minor sulphides and malachite stains.
- HW-91-3 Quartz lenses and veinlets outcropping over an area of approximately 30 to 40 m². No visible mineral-ization.
- HW-91-4 Quartz float with iron sulphide pockets and aggregates.
- HW-91-5 Quartz with chloritic wallrock inclusions, from boulders larger than 1 m³.
- HW-91-6 Rusty quartz float blocks with minor sulphides and malachite stains.
- HW-91-7 Quartz and wallrock from a quartz stockwork zone in grey schist. The quartz is not mineralized, but the enclosing rock shows sericite and sulphide alteration.
- HW-91-8 Rusty weathering conglomerates and shales from large blocks carried on surface of glacier.
- HW-91-9 Pyritized conglomerate associated with gold-bearing quartz vein.

- 8 -

- HW-91-10 Sulphide-rich gold-bearing quartz
- HW-91-11 Sulphide-poor gold-bearing quartz

ACME ANAL	Ē	CAL	LAB	DRAY	TCI	es L nai)	TD.	<u>in :</u>	852 <u>Exp</u>]	E. GEC Lora	HAS DCHI Atic	TING EMIC On 8	SS S CAL Serv	I. V ANI	DE I	DUVE BIS Ltd.	R B. CEF	C. TII F:	V6A FICA	1R6 ATE # 0	5 91-4	PE 385	ONE	(604 Pag)253 (e 1	-31!	58	FAX) 253	-171 \A	6
SAMPI F#	Mo	Cu	Pb	7n	Ån	Ni	<u> </u>	Mn	Fe	40	<u> </u>	P.O.	BOX -	41, 1 Sr	atla i	Lake I	BC VUI	_ 1VU		D	<u> </u>	<u> </u>	Ma		<u>т;</u>	B	<u></u>	No.	<u> </u>	U:		
Oran EER	ppm	ppm	ppm	ppm	ppin	ppm	ppm	ppm	۲e	ppn	ppm	ppm	ppm.	ppm	ррп	ppm	ppm	ppm	%	×	ppm	ppm	~ ~ %	ppm	X	ppm	x	×	x	ppa	ppb	
HU-91-1	2	125	2	5	2	10	21	165	6 58	4588	5	ND	1	17	.,	2	2		16	D15	2		27	61	06	2	81	08	28		~~~	_
H₩-91-2	1	393	2	93	6	17	29	839	7.61	2	5	ND	1	16	2	2	4	221	2.39	070	2	16	2.02	48	20	3	2.19	.07	.28		6	
HW-91-3	2	29	3	27	2	8	4	591	1.18	2	8	ND	i	52	2	2	2	- 9	5.72	.034	2	14	.31	23	.05	6	.54	.03	.11	2	ŭ	
HW-91-4	22	520	3	15	2.7	11	52	196	8.90	24	5	ND	1	20	2	: 2	5	14	.80	.007	2	10	.19	15	.02	2	.43	.04	.08		330	
HW-91-5	1	24	3	49	.2	9	10	458	1.93	15	5	ND	1	39	2	2	2	49	1.97	.028	2	- 12	.93	48	.11	4	1.58	.06	.15		1	
HW-91-6	1	611	2	11		8	19	180	2.97	2	5	ND	· 1.	. 22	.2	2	5	19	.90	-009	2	- 12	.18	8	-02	7	.66	.04	.05	32	290	
HW-91-7	1	145	2	29	2	9	12	295	2.94	2	5	ND	1	26	.2	2	- 2	92	1.08	-035	2	13	.52	42	.09	2	1.58	.14	.29		11	
HW-91-8	5	65	4	69	.4	21	15	335	4.49	3	- 5	ND	1	134		2	2	77	5.38	-061	2	49	1.10	148	.20	2 3	2.51	.25	.82		1	
HW-91-9	1	.112	2	27		8	19	312	4.78	2 2	5	ND	1	110		2	2	70	1.83	-055	2	13	.65	77	21	2 :	3.01	.42	.54		15	
HW-91-10	6	112	2	23	7.0	7	12	302	2.83	3	5	3	· 1	34	.2	2	2	50	1.21	.017	2	11	.50	31		2	1.76	.13	.56	4	2430	
HU-01-11		7/	2	0		7		441	1 10							-	-	45	/0				40				/=	07	00		020	
	17	- 54 - 64	70	172	7 2	70	22	104	3 04	15	10	ND Q	1	0 57	10 7	15	17	15	.40 /9	SUDA:	70	50	- 10 99	176	00	75	.42 1 90	.03	.08	4	920	
UTANDAND C	11	~~		:52	- 1998 - 18 - 1 8 19	- 10	J۲	1045	3.90	<u></u> +4;	17			<u> </u>	40.48	<u>, 15</u>	17	01	. 40	.U7U	- 39	78	•00	1/0		22	1.07	.07	•12.3	@# > _		

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HN03-H20 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. ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB - SAMPLE TYPE: P1 ROCK P2 STREAM SED. AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

Sept 20/91.

DATE RECEIVED: DATE REPORT MAILED: SEP 12 1991

0 1

<u>Stream sediment survey</u>. The samples collected from streams consist of fine sediments taken from the active part of the stream beds. The locations of these samples will be found on Map #4 (in pocket) along with anomalous values in the most useful indicator elements. In addition six samples taken on the HW9 claim ground during a previous regional survey are plotted on Map #4; none of the costs of the regional work are included in this report. The number of samples taken is insufficient to arrive at meaningful thresholds of anomaly by using statistical methods; instead, anomalous threshold values were estimated after taking in account the stream sediment work performed by Homestake Mineral Development in 1983 (AR 13150) and by Equinox Resources in 1987 (AR 17392) in an area with similar geology located 8 km due east of the HW9. The threshold values used in these surveys were as follows:

	Homestake (AR 13150)	Equinox (AR 17392)
Au	25 PPB	30 PPB
Cu		100 PPM
As	50 PPM	100 PPM
Ag	0.5 PPM	0.6 PPM

The more stringent thresholds used by Equinox were adopted for the current survey. Of the 17 samples analysed, 8 are anomalous in one or more of these elements. Three minor anomalous values for silver are found near the eastern boundary of the HW9, and four marginally anomalous values for copper are located in the central part of the claim. The one anomalous value for gold is quite pronounced, and also originates in the central part of the claim. This area was still covered by extensive snow patches in August 1991 (during this program). It appears that the anomalous gold value is connected to the central drainage of a local glacier, which could not be tested adequately during the program because of the unusually heavy snowfalls of the preceding winter. Follow up work would be indicated in this area.

Tchaikazan Exploration Services Ltd. FILE # 91-4385

Page 2

ACHE ANALYTICAL

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	۷.	Ca	Р	La	Cr	Mg	Ba	Ti	BA	Na	ĸ	Au*
	ppn	ppm	ppm	ррп	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppn	ppm	ppm	ppm	ppm	%	X	ppm	ppm	*	ppm		ppm 3	*	% ppr	ppb
		Ťo					47	7/0			-			~			2					77	00	70		E 1 41	10	40	× 4
NS-91-1	1	70	0	60		10	15	302	3.24		>	ND	1	6 0 🕺	-4	2	2	00	1.10	•020	2	21	.00	10	-16	2 1.00	. 10	• 17 3000	0.1
NS-91-2	1	67	2	57		12	10	325	3.03	2	5	ND	. 1	58 🕺	Z	. 2	· 2	74	1.17	2062	Z	21	.78	87	12	2 1.6	-15	-24 301	8 6.4
NS-91-3	1	82	2	- 77	.2	17	13	368	4.18	5	5	ND	- 1	68 🖁	-3	2	2	101	1.03	-064	2	27	.90	- 95	.15	3 1.89	.14	.26	76.0
RE NS-91-8	·· 1	96	6	81	.2	20	14	387	3.75	8	-5	ND	· 1	69 🕴	.4	. 2	2	83	.87	.061	2	30	.97	104	.17	2 1.99	.14	.27 💓 1	8.6
NS-91-4	1	59	3	48	.2	- 10	11	273	3.79	2	5	ND	1	60	_Z	2	2	- 99	1.25	061	2	- 19	-25	.59		5 1.43	.11	.15	8.0
									. 8										1997 - L		• •								8
NS-91-5	S. 1	89	5	74	.2	15	13	431	3.97	10	5	ND	1	60 🖁	.2	2	2	84	.85	.068	2	21	1.00	80	.18	3 1.83	-10	.21 11	6.3
NS-91-6	.2	91	2	92	.2	19	15	538	4.09	26	5	ŃÐ	1.	65 🕴	.4	2	2	- 79	.89	.077	2	28	1.07	81	.20	3 1.94	11	.23 📰 1	28.1
NS-91-7	1	104	8	111	-2	22	17	553	4.77	8	5	ND	- 1	. 75 🖁	.6	2	2	111	1.08	.075	2	35	1.27	110	.22	2 2.57	. 16	.31 📰 1	§13.3
NS-91-8	1	101	2	79	.3	20	14	395	3.80	7	5	ND	1	70 🕺	_3	2	2	86	.90	.065	2	30	1.00	106	, 18	3 2.03	.14	.28 001	8.3
NS-91-9	1	107	16	118		23	21	663	5.42	7	5	ND.	1	65	-5	2	2	122	.99	.071	2	34	1.59	152	.25	2 2.7	.14	.62 📖 1	§ 4.6
the second s	· · .																												ž.
NS-91-10	<u></u> 1	138	- 4	78	.2	17	15	495	4.13	5	5	ND	1	76	.2	2	- 3	86	1.09	.069	2	24	1.17	105	.21	2 2.22	-14	.31 📖 1	7.2
NS-91-11	1	99	3	-91	.5	18	15	462	4.38	6	5	ND	1	58	.4	2	2	105	.88	.062	2	28	1.01	128	15	3 2.2	-14	.32 📰 1	§ 7.3
STANDARD C/AU-S	18	61	40	132	7.0	71	33	1042	3.98	39	19	7	39	52	18.3	16	19	56	.48	.089	38	58	.88	178	.09	32 1.89	.07	.15 📰 11	47.2

Samples beginning 'RE' are duplicate samples.

CONCLUSIONS AND RECOMMENDATIONS

On the ground which adjoins the HW9 claim to the east, most in-situ occurrences of mineralization are located fairly close to, and generally above, the plane of thrusting which juxtaposes volcanic rocks over sedimentary and volcanic rocks of Triassic age. Structural traps were created in the vicinity of the fault, and the thrusts took place before the intrusive activity of the Coast Plutonic Complex, since the intrusives cut through and obliterate a thrust plate to the south of Mount Ottarasko. Conceivably, a hydrothermal system driven by plutonic activity brought about the quartz-gold-silvercopper mineralization in evidence in that area, with deposition taking place in the pre-existing structural traps.

This structural pattern holds for the HW9 claim, and numerous quartz bodies are to be found above, and frequently in a position sub-parallel to the thrust fault plane. However, on the HW9 most quartz bodies contain no or very small amounts of economic minerals of the kind to be found to the east, northeast and north.

The gold bearing quartz vein located during the current program appears to yield only modest assays in selected grab material; in view of the fact that further testing of this vein would be extremely difficult because of its location, no follow-up work is indicated at this point. However, the probable source area for the strong Au stream anomaly, approximately 500 m to the east of this vein, should be investigated in more detail when snow conditions are optimum, that is September following a winter of sub-normal precipitation.

REFERENCES

B.C. Ministry of Energy, Mines and Petroleum Resources. Minfile Nos. 092N019 (Blackhorn) and 092N035 (Homestake).

Berniolles, L. M. (1987) Prospecting Report, AT2 Claim. Assessment Report 16688.

(1988) Prospecting Report, AT34 group. Assessment Report 18022.

(1989) Prospecting Report, HW group. Assessment Report 19355.

Culbert, R., Lammle, C.A.R., and Heberlein, K. (1988). Geochemical, Prospecting and Air Photo Study on the LOOT 1-2 Claims. Assessment Report 17392.

Roddick, J.A., Tipper, H.W. et al (1985). Geology, Mount Waddington, 92N. G.S.C. Open File 1163, map and marginal notes.

- Ronning, P.A. (1983). Preliminary Geology and Geochemistry of the LORI 1, 2, 3 and 4 Claims. Assessment Report 13150.
- Rusmore, M.E., and Woodsworth, G.J. (1988). Eastern margin of the Coast Plutonic Complex, Mount Waddington map area, B.C. Current Research Part E, G.S.C. Paper 88-1E, P. 185-190.

(1989) A note on the Coast-Intermontane belt transition, Mount Waddington map area, B.C. Current Research, Part E, G.S.C. Paper 89-1E, p. 163-167.

Sargent, H. (1938). Tatla Lake Area, Blackhorn Mountain Section and Perkins Peak Section. B.C. Minister of Mines Annual Report, p. F29-41.

Tipper, H.W. (1968) Mesozoic and Cenozoic geology of the northeast part of Mount Waddington, Map Area (92N). Paper 68-33.

ITEMIZED COST STATEMENT	- HW9 PROJECT	
Field personnel - August 5 to Sept. 1, 19 1 lead prospector (L. Berniolles)	991 14 days @ \$175	\$ 2,450
2 prospectors (V. Berniolles, F. Berniolles)	28 days @ \$125	3,500
Food and accomodations		890
Aircraft support (Bell 206B)		
air time	1.1 hrs. @ \$625	. 83
GST	1•1 III.5• C # ,5	53
Ground transport (P.U.)	1200 km @ 20¢	240
Equipment Rental		
SBX11A, 4 frequencies	½ month @ \$400	200
Laboratory analyses		1.40
rock samples	11 samples @ \$12.75	140
GST	II Dombred C freed	18
Shipping		45
Mobilization/demobilization	3 man/days @ \$125	375
Report preparation		
writing	1 man/day @ \$125	125
office supplies, reproduction	I man/day @ \$125	37
		<u> </u>
		enten (d. 1997) - Landa A
	Total	\$ 9,084

- 14 -

STATEMENT OF QUALIFICATIONS

I, Louis M. Berniolles, residing at Tatlayoko Lake, British Columbia, do hereby state that:

- 1. I am a graduate of the University of British Columbia, Vancouver (1963) and hold a B. A. degree in Economics.
- I attended the B. C. Ministry of E.M.P.R.'s Advanced Prospecting Course at Selkirk College, Castlegar, B.C. in 1979.
- 3. I have been engaged in mineral exploration on my own or as an employee of Tchaikazan Exploration Services Ltd., since 1979.
- 4. The work reported herein was carried out by myself or under my supervision; the conclusions and discussions of the data are my own.

Louis M. Berniolles

Dated at Tatlayoko Lake, British Columbia, this 25th day of November, 1991.







