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GEOLOGICAL AND GEOCHEMICAL REPORT
ON
GOLDEN EAGLE

GREENWOOD MINING DIVISION 82E/1W 49°10' 118°26'

owned by J. STOOCHNOW

by J.T. SHEARER, M.Sc. for

J.C. STEPHEN EXPLORATIONS LTD.

Field work completed between Aug. 19 to 26/80

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GOLPEN EACLE - GREENWOOD 836/110

October 30, 1980 Sandspit, B.C.

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#### SUMMARY

The Golden Eagle Area contains a number of gold showings that were independently developed during the period 1884 to 1913. A small tonnage of high grade ore was shipped from the Golden Eagle Mine to the Granby Smelter around the turn of the century.

A total of 19 man days were spent in preliminary prospecting, geological mapping and soil sampling on the Golden Eagle claims between August 19 and 26, 1979.

Soil samples were collected on a widely spaced grid, however three weakly anomalous gold zones were delineated. These three areas warrant detail follow up sampling and mapping. Backhoe trenching may be required to further test these anomalies.

Major lithological units agree closely with previous regional work in the Greenwood map sheet and Granby River Valley. Eight units are recognized. Fill in geological mapping is recommended on lines at 100 metre spacing.

Ownership of all key claims should be consolidated under one working agreement to facilitate the orderly exploration of this interesting area. A concerted effort to find all sources of data on previous work, especially diamond drilling should be a priority.

#### INTRODUCTION

The Golden Eagle Area encompasses several well known old properties that have collectively been referred to in the past as Brown's Camp. Intensive work first began in the area under the direction of R.A. "Volcanic" Brown in 1894 on the Volcanic and Iron Cap claims which were later relocated as the Volcano and Fantentine. Attention initially focused on a spectacular gossan produced from weathering of massive pyrite-pyrrhotite lenses. R.A. Brown gained wide recognition for discovery of the Copper Mountain deposits on the Similkameen River.

An adit was collared on Mammon Fraction and driven northeasterly under the gossan zone on Volcanic Mountain but failed to intersect any significant mineralization. The 1899 Annual Report of the Minister of Mines (page 758) describes the claims as follows:

"This is one of the most interesting propositions in the District, partly from the nature of the deposit and its immense surface showing, forming a feature of the landscape and partly from the profound faith exhibited by the owner, Mr. R.A. Brown, in the future of the property."

Meanwhile, development was progressing on the adjacent Golden Eagle Claim where 200 feet of workings had been completed prior to 1899. Several shipments totalling over 200 tons of relatively high grade ore was sent to the nearby Granby Smelter between 1907 and 1910. Renewed sampling in 1925 reported 2 veins, the second of which ran 0.36 ounces per ton gold, 25 ounces per ton silver and 5.6% copper in one of the old stopes (Minister of Mines 1925, Page 193). However, J.A. Thomson in an undated report, probably around 1911, describes three veins.

North of the Volcano Claim, massive pyrrhotite and pyrite hosted by altered limestone on the Superior Claim is known to assay over 1 ounce per ton gold (Minister of Mines Reports 1928, 1931). Grab

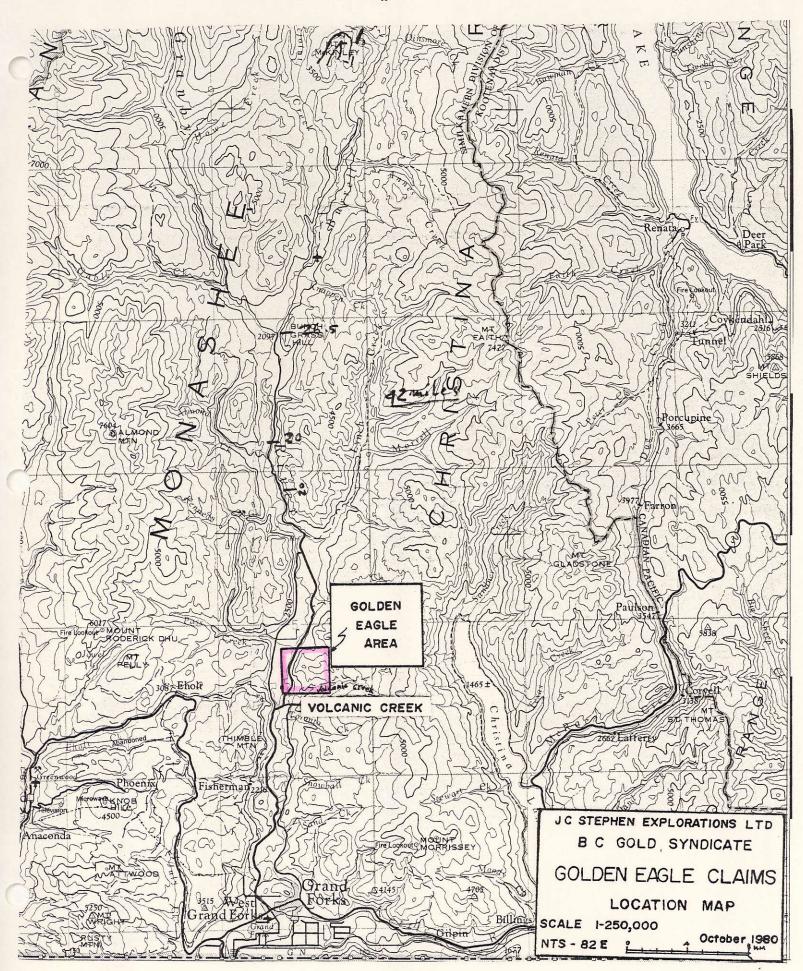


FIGURE 1

samples from old dumps on the Phillip Sheridan Claim also gave high gold values.

The history of exploration since 1950 is largely unrecorded. A drill hole dipping 47° toward the Golden Eagle vein probably dates from the last 10 or 15 years but no data on what was encountered is available. Some brief reconnaissance examinations are known to have been done in the late 1960's but no information has been made public. Several claim posts dated in 1963 were noted on the crowngrants and Consolidated Boundary is rumoured to have made an extensive evaluation during the 1960's.

The present program began in 1978 with a brief examination of Brown's Tunnel and some of the more obvious surface showings. In August 1979, limited geological mapping and soil sampling on widely spaced lines were undertaken. Anomalous soil response for gold in three principle areas requires additional sampling and fill in of the geology. Initial results do not preclude the possibility of a bulk tonnage gold environment being present within the Golden Eagle gold bearing vein-alteration system. Future work should concentrate on defining the soil anomalies in relation to known narrow gold sources with extensive trenching to sample underlying bedrock.

Unfortunately due to complicated ownership of key claims and lack of a working agreement between all the owners, no follow up work has been attempted.

Currently, the lower portions of the property are under development by Mr. J. Stoochnow for the production of a fertilizer utilizing the transported gossan or "Red Earth" and marketed by the name Sumagro.

#### PROPERTY, LIST OF CLAIMS

Claims in the Golden Eagle Area are listed in Table I as of August 1979. The extent of changes, if any, between August 1979 and October 1980 are not known. A 1979 claim map is shown in Figure 2. No attempt has been made to produce an up to date claim record.

In the recent past, Mr. Stoochnow controlled all claims either by outright ownership or option. However, several other individuals have now entered the area mest notably Carmac Soil Conditioners on the Fantantine. Mr. D. Minkin has located some of the area surrounding the crown grants, in some cases using the same names as the lapsed claim.

Apparently, some of Mr. Stoochnow's located claims were inadvertantly cancelled by the Department of Mines despite having filed the correct assessment fees. To complicate matters the claims in question were allowed to lapse several years later. The validity of the located claims under Minken's name will still be in doubt.

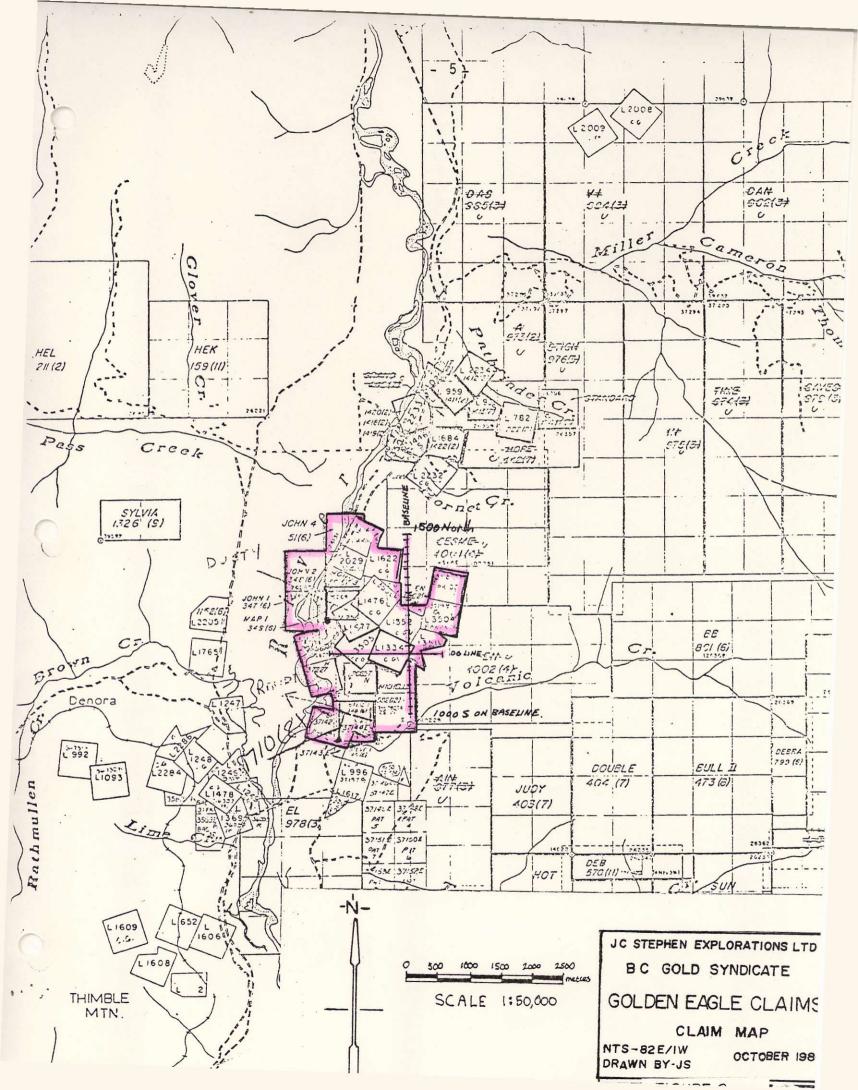


TABLE I

### GOLDEN EAGLE AREA

## PARTIAL LIST OF CLAIMS

(A)	CROWNGRANTS						
	CLAIM NAME	LOT <u>NUMBER</u>	FOLIO NUMBER	SIZE (hectares)	OWNER	ADDRESS	
	LASKAY	L1351	026859	11.28	FJN Explorations	Box 49, Salmo, B.C.	
	GOLDEN EAGLE	L1334	126859	18.30	FJN Explorations	Box 49, Salmo, B.C.	
	JUNCTION CITY	L1352	126859	16.04	FJN Explorations	Box 49, Salmo, B.C.	
	VOLCANIC	L1476	126859	20.90	FJN Explorations	Box 49, Salmo, B.C.	
	MAMMON FR	L3505	029254	13.18	FJN Explorations	Box 49, Salmo, B.C.	
	DABNEY FR	L3506	027227	2.43	G.A. Evans (under option to FJN Explorations)	R.R.#2, Grand Forks, B.C	•
	SUPERIOR	L1622	027227	19.3	G.AEvans (under option to FJN Explorations)	R.R.#2, Grand Forks, B.C	•
	FANTANTINE	L1477	Mineral Lease	LPP No. 49	Carmac Soil Conditioner Ltd. (Mr. Thompson, New Westminster)		
	CHICAGO	L3504	?	?	?		

### (B) LOCATED CLAIMS

CLAIM NAME	RECORD NUMBER	ANNIVERSARY DATE	EXPIRY DATE	OWNER
JOHN 1	56(6)	∂une		D. Minken, Calgary
JOHN 2,3	347(6)	June		J. Stoochnow, Salmo
DUSTY		August 7		N. Stoochnow, Salmo
EILEEN	L3005			J. Stoochnow, Salmo
RANDY	1710(8)			N. Stoochnow, Salmo
MICHELLE	582(12)			D. Minken, Calgary
BLACK FYF		November 14		

Ownership as of August 1979, Changes, if any, between August 1979 and October 1980 are unknown.

#### LOCATION AND ACCESS

The Golden Eagle area is located 14 km directly north of Grand Forks as shown on Figure 1. A paved road extends along both sides of the Granby River, North Fork Road, approximately 17 km to the west side of the claim group. Secondary dirt roads suitable for two wheel drive vehicles extend up Volcanic Creek to the Golden Eagle shaft and Phillip Sheridan workings. Elevations range from 1800 feet at the Granby River to 3200 feet at the Superior-Volcano boundary.

The area is characterized by open Yellow Pine forest with many grassy clearings. Dense patches of Fir and Pine grow along the narrow fault controlled gullies.

#### FIELD PROCEDURES

A north-south base line was carefully run with a silva compass and roughly slope chained to 1500 metres north and 1000 metres south. Lines oriented east-west were measured by a Topolite Belt Chain calibrated in meters for which the manufacturer gives a 0.1% accuracy. Lines averaged 700 metres to the west and 600 metres to the east. The baseline was started at the Golden Eagle shaft and is clearly marked by metal tags.

A basemap undated but drawn for William K. White, was used to position the Golden Eagle shaft with respect to the outline of the other claims. Mr. White was active in Grand Forks Mining Circles in the early 1900's, especially Franklin Camp, and presumably commissioned the Golden Eagle map shortly after the claims were surveyed in 1900. However, some discrepancies are apparent between White's map and the fragmentary and incomplete survey plots produced by British Columbia Land Surveyors J.A. Coryell, C.A. Stoess and E.W.M. Lysons up to 1905.

Brown's tunnel on the survey plots is shown as being collared on the Mammon Fraction and extending north-easterly into the Fantentine. According to White's map and the present work, the portal to Brown's tunnel is almost 100 metres south of the Mammon-Fantentine boundary. Apparently, the western portion of the claim outline on Figures 4 and 5 (in pocket) should be rotated about the Golden Eagle shaft approximately 100 metres to 150 metres to the south.

Since the area contains considerable open meadows and rock bluffs, an accurate orthophoto contour map would provide an ideal base map for any comprehensive geological mapping project.

Soil samples were collected 50 metres apart along lines at 00, 100 S, 200 S, 300 S, 200 N, 600 N, 800 N, 1000 N, and 1200 N. A grubhoe was used to sample the 'B' Horizon which varied from a few centimetres to over 30 centimetres in depth. A standard soil data sheet was filled out in the field noting items such as: sample number, location, depth, horizon, colour, particle size, per cent organics, pH, slope, vegetation and additional remarks. Samples were placed in waterproof kraft bags and sent to Chemex Labs Ltd., 212 Brooksbank Avenue, North Vancouver, B.C. Analytical procedures are outlined in Appendix IV.

#### **GEOLOGY**

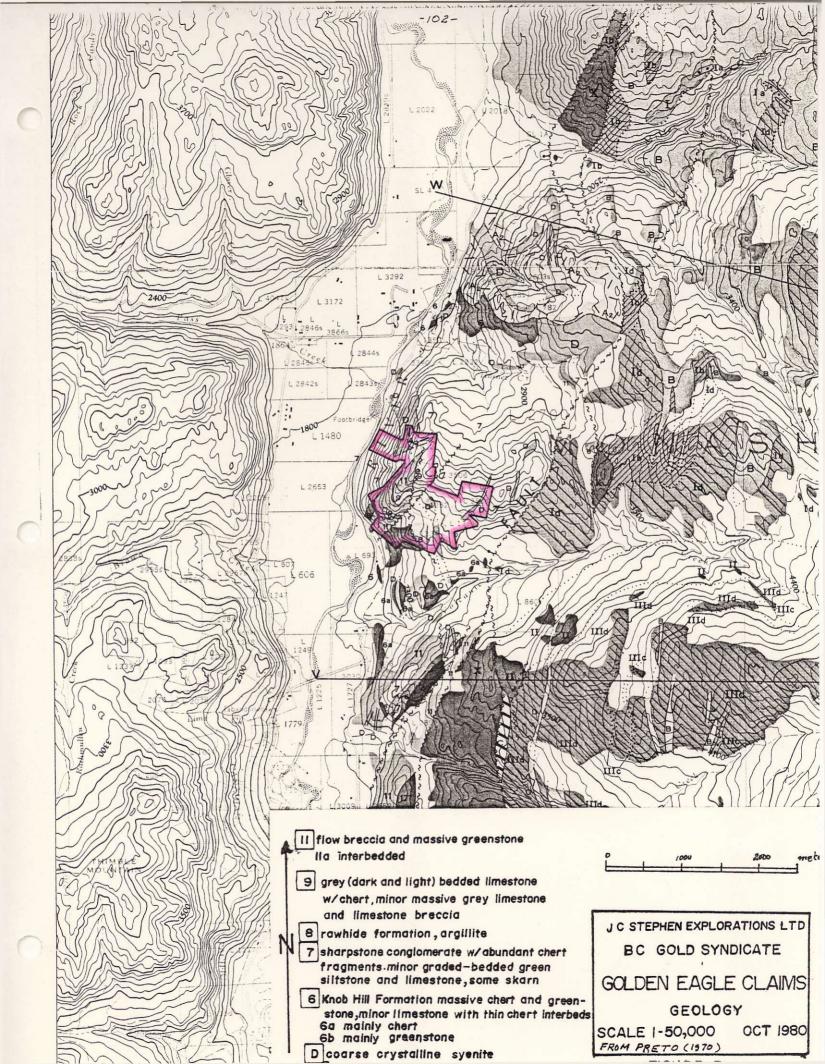
### (A) REGIONAL GEOLOGY

Regional geology is illustrated on Figure 3. This map was produced by V.A. Preto (1970) during a study of the adjacent high grade metamorphic terrain and was only incidently concerned with younger less deformed rocks. Preto mentions the sedimentary and volcanic rocks west of the Granby River fault from page 33 - 38. Essentially the lithology observed during detail mapping on the Golden Eagle Area conforms with the outline shown on Figure 3 although the exact distribution of rock units varies considerably. These rocks are discussed under Local Geology.

A profound structural break referred to as the Granby River fault occurs about 2000 metres east of the Granby River in the vicinity of the claims. This fault zone forms part of a long north trending dislocation that can be traced south to connect with the east boundary of the Republic Graben. The vertical stratigraphic displacement along the Granby River fault is estimated by Preto (1970) to be in order of 14,000 feet.

The high grade metamorphic sequence to the east of the Granby River fault represents one of the southernmost extensions of the Shuswap Metamorphic Complex. Preto (1970) defined a maximum thickness of 22,000 feet of interlayered metasedimentary gneiss, calcareous schist, foliated amphibolite, pegmatite and amphibolite gneiss. Several stages of intrusive activity ranging from hornblende-biotite granodiorite, pyroxenite to coarse grained syenite have been documented.

The last regional events were the intrusion, in late Middle Tertiary time of stocks and dykes of quartz diorite to quartz monzonite followed by extensive block faulting.



### (B) LOCAL GEOLOGY

Detail geological mapping is shown on Figure 4 (in pocket). This must be considered a reconnaissance type map since the lines used for control are 200 metres apart in some cases. However a preliminary view of the relevent lithology can be obtained and an insight gained about the geochemical response. Most of the lines were mapped by B. Atkinson with the remainder and some of the interline observations by J. Shearer.

Rock units are listed in Table II in rough stratigraphic order.

#### TABLE II

#### MAP UNITS

			Numbering used
Figu	re 4		by V.A. Preto (1970)
<u>Unit</u>			Little and Thorpe (1965)
8	SYENITE,	coarse grained, pink to grey biotite hornblende porphry	D
7	GRANODIORITE	, biotite hornblende mesocratic granodiorite	A <sub>2</sub>
6	ANDESITE,	pale green porphytitic Andesite	11
5	LIMESTONE,	Massive white crystalline, to grey bedded limestone	9
	(5a) skarn,	epidote, garnet, magnetite, tremolite	
4	SILTSTONE,	grey, fine clastic	Possible 8, or facies of 7
3	SHARPSTONE C	OMGLOMERATE, abundant angular chert fragments, polymictic	7
2	GREENSTONE,	calcareous greenstone Knob Hill Formation (in part)	6b
1	CHERT	plus interbedded greenstone, ribbon chert and minor limestone	6A

The stratigraphic sequence established to the west by Little and Thorpe (1965) during 1:250,000 reconnaissance mapping by the Geological Survey of Canada in the Greenwood East Half map area has been found applicable to the Golden Eagle Area and is followed in this report.

Map unit 1 is composed of a thick sequence of thinly interbedded volcanic greenstones and white ribbon cherts which underlie all other units and is correlated with the Knob Hill Formation. It occurs mainly along the extreme western boundary of the claims north of Brown's Tunnel.

A massive fine grained greenstone, (unit 2) apparently overlies map unit 1 although Preto assumes a facies equivalent relationship. In some places map unit 2 seems to grade into the sharpstone conglomerate but this may be more a function of the severe alteration in conglomerate.

Unit 3, the sharpstone conglomerate, is a distinctive rock type consisting of angular, white siliceous fragments up to 3 cm in diameter in a fine grained green matrix. The most common clasts are light grey to dark grey chert and green andesitic volcanic rocks. In the central part of the grid, the sharpstone conglomerate is commonly highly altered by chlorite and epidote. This unit is the most widely exposed rock type on the property. Figure 5 shows the distribution of sharpstone conglomerate around the Golden Eagle shaft.

Fine grained, facies equivalents of the sharpstone complomerate are shown on Figure 4 as map unit 4 because of the slight possibility that there is some Rawhide Formation present as shown by Preto but this was not confirmed by the detail work in the vicinity of 1\$+00.

Massive, white, crystalline limestone, unit 5, outcrops on ridges immediately above both the Knob Hill Formation and the sharp-stone comglomerate. This limestone is commonly skarnified, silicified and tightly folded. It is exposed almost exclusively adjacent to a prominent fault trending north north-east through the Volcanic claim. Several small skarn zones consist of massive pods of pyrite, pyrrhotite and minor chalcopyrite in an assemblage of tremolite, magnetite, epidote and garnet.

Map unit 6 is a pale green porphyritic andesite that is exceedingly difficult to distinguish from the greenstone unit (Map unit 2) associated with the Knob Hill Formation. Much of unit 6 is chloritized near large faults. Detail mapping is required to adequately separate Unit 6 from unit 2 in future work.

Small stocks of coarse to medium crystalline granodiorite, map unit 7, has intruded the limestone and sharpstone conglomerate on the Junction City Claim and the Knob Hill formation in the north-west corner. Coarse grained hornblende and plagioclase crystals predominate with minor biotite.

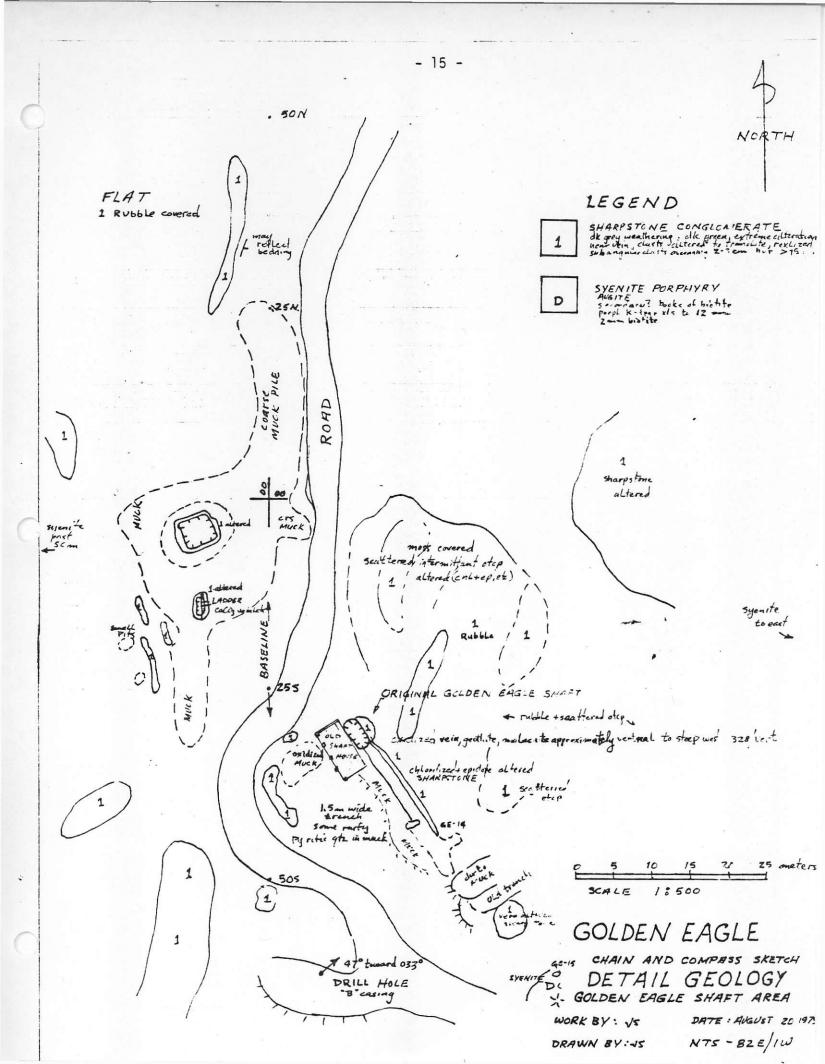
The youngest rock on the claims is a very coarse, pink to grey porphyritic syenite containing large phenocrysts of biotite, potassium feldspar and hornblende. It occurs as small dykes, plugs and irregular masses cutting sharpstone conglomerate and to a lesser extent Knob Hill formation and granodiorite. The syenite is exposed extensively around the Golden Eagle shaft and east on to the Laskay claim. In places the syenite appears to have intruded as sheets or sills along bedding planes in the sharpstone conglomerate with the entire mass later tilted eastwards.

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A detail analysis of the geological parameters at 1:3600 is not reasonable until the control line spacing is reduced to at least 100 metre spacing, or preferrably closer, and an accurate base map is compiled. The basic concept of the property geology is shown on Figure 4 where the oldest units are located in the west and south with a carbonate package spatially associated with a major north-south fault. On the east there is a thick package of coarse clastic sediments intruded by a swarm of syenite dykes and sills. Each of these lithological changes appears to be accompanied by faulting.

Mineralization is discussed in a later section.

#### GEOCHEMISTRY

The location and results of soil sampling are plotted on Figure 6 (in pocket). A total of 214 samples were collected along the grid at 50 metre intervals on lines spaced 200 metres apart north of 00 and lines 100 metres apart south of 00.

Frequency distribution histograms for both arsenic and gold are contained in Appendix IV. The gold curve shows the usual skewed population toward 410 ppb due to the detection limitiations of atomic absorption and sample inhomogeneities from sieved samples. There is a subsidiary peak at 20 ppb although this is considered to be analytical errors. However gold values in excess of 40 ppb are anomalous. Arsenic appears to be a mixture of two pppulations giving a wide distribution between 5 ppm and 15 ppm.

There are three weak gold anomalies indicated on Figure 6; (1) 1S 350W to 3S 150W, (2) 2N 55W to 4N 450W and (3) 10N 300W. Each of these anomalies should be followed up by detail soil sampling and geological mapping. Backhoe trenching could be used if indicated. The first gold anomaly is underlain by an assemblage of greenstone and metasiltstone. The second anomaly occurs near the spectacular gossan zone and mineralized skarn showings. The northernmost soil anomaly is in an area of sharpstone conglomerate and Knob Hill formation ribbon cherts and greenstones.

High arsenic values generally are associated with higher gold content but not exclusively. Moderately higher arsenic values are indicated for the transported gossan material as indicated on Line 00 west of 600W.

Soil profiles may be useful in determining the extent of residual soil development.

An immediate priority should be filling in the north lines to 100 metre line intervals.

#### MINERALIZATION

Relatively high grade gold and silver values have been reported from the upper parts of the Golden Eagle vein system in the early days of exploration. J.A. Thomson (1911?) gives the following results:

"No 2 vein, averages from 2 to 10 feet in width in the shaft and drift, 240 tons of ore shipped to the Granby Smelter gave a gross value of 0.48 oz. \$9.60 in gold, 4.47 oz. \$2.25 in silver and 5.57% in copper."

The 1925 Minister of Mines Annual Report gives a quote of: "Samples of ore, which is made up of pyrite, marcasite, chalcopyrite, malachite and azurite, containing gold and silver in a gangue of quartz, assayed as follows: No. 1 first vein, stope, 0.20 oz in gold, 2 oz in silver to the ton; No. 2, second vein tunnel, 0.06 oz gold, 1 oz in silver to the ton, and 0.5 per cent copper; No. 3, second vein, stope, 0.36 oz in gold, 25 oz in silver to the ton and 5.6 per cent copper."

Samples taken in 1979 at the Laskay dump area assayed 0.180 ounces per ton gold and 0.156 ounces per ton gold from fairly massive pyrite specimens. Silver was > 20 ppm in these two samples. The Golden Eagle vein is exposed in several shafts where it is approximately 1.5 metres wide in an isolated pillar and is oriented  $328^{\circ}$ /vertical.

Drusy quartz breccia zones are common in the sharpstone conglomerate, greenstone and massive limestone members. None of the limited rock geochemistry gave anomalous values. However the possibility of bulk tonnage mineralization should not be roled out.

#### CONCLUSIONS AND RECOMMENDATIONS

Initial soil sampling and geological mapping has been undertaken on the Golden Eagle Area. Fill in geological mapping on an accurate base map should be considered for the entire property. Soil sampling on 100 metre lines is recommended for the northern portion of the grid.

Preliminary results indicate three gold soil anomalies that should be checked by detail resampling, and backhoe trenching if necessary. A concerted effort should be made to obtain the results of diamond drilling done around the Golden Eagle shaft and any other work completed between 1950 and 1978.

Orientation SP and horizontal loop EM should be conducted over selected lines in order to determine the applicability of a survey over all the claims.

Respectfully submitted,

J.T. Shearer, M.Sc., F.G.A.C.

#### REFERENCES

B.C. Dept. of Mines, Annual Reports

Chicago (Grand Forks)...1900,871; 1901,1066

Fantantine (formerly Iron Cap) (Grand Forks) - 1894, map: 1899,758; 1900,990; 1903,172; 1906,163; 1928,237

Golden Eagle, Lot 1334, Brown Camp (Grand Forks) - 1899,758; 1900,870,873,991; 1901,1064,1065; 1904,221; 1905,185; 1906,163; 1907,109,115; 1908,115; 1909,134,273; 1910,118,224; 1925,193

Junction City (Grand Forks) - 1899

Laskay (Grand Forks) 1899,758; 1900,991

Phil Sheridan (see also Philip Sheridan) (Grand Forks) 1899,757

Volcanic (see also Volcano) (Grand Forks) - 1894, map; 1895,703; 1897,582,596; 1899,758; 1900,873; 1901,1064,1065; 1903,172; 1905,185

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## APPENDIX I

LIST OF PERSONNEL AND DATED WORKED

GOLDEN EAGLE Field time August 19 to 26, 1979

## LIST OF PERSONNEL AND DATES WORKED

			Date worked
Name	<u>Occupation</u>	Address	on Claims
J.T. Shearer	Geologist	R.R.#1 Mason Ave., Port Coquitlam, B.C.	August 19,20,29,26 4 days
B. Atkinson	Geologist (B.Sc.,Geology, McMaste University 1977,3 sun experience)		August 19,20,21,22,23, and 24. 6 days
J.D. Clarke	Prospector 4 seasons experience	Garibaldi Highlands, Squamish, B.C.	August 19,20,26 3 days
G. Marchak	Soil Sampler I summer experience	4455 West 1st Ave. Vancouver, B.C.	August 19,20,21,22,23 and 24. 6 days

## APPENDIXII

STATEMENT OF COSTS

GOLDEN EAGLE

Field time August 19 to 26, 1979

## GOLDEN EAGLE

## FIELD TIME - AUGUST 19 TO AUGUST 26

# WAGES AND FRINGE BENEFITS:

B. Atkinson 6 da J. D. Clarke 3 d	ys @ \$81.72 per day ys @ \$65.29 per day lays @ \$60.26 per day ys @ \$50.22 per day Total Wages	\$ 326.88 391.74 180.78 301.32 \$1,200.72
FOOD AND CAMP COST	<b>-S</b>	
19 man-days at	\$10.50 per day	199.50
TRANSPORTATION:		
	niles @ 25¢ per mile ons @ 96.9¢ per gal	127.75 35.37
GEOCHEMISTRY	•	
Soil samples:	223 samples @ \$6.25 + \$.45 = \$6.70 for Au & As Cert. No. 50146 - 5051, 50144	1,494.10
Rock:	6 samples @ \$9.25 + \$1.75 = \$11.00 for Au, As & Sb	66.00
Shipping Samples		36.00
Reproduction and D	Prafting	240.00
Report preparation	, typing	300.00
		\$3,699.44

## APPENDIX III

STATEMENT OF QUALIFICATIONS

J.T. SHEARER, M.Sc., F.G.A.C.

#### APPENDIX III

#### STATEMENT OF QUALIFICATIONS

- I. J.T. Shearer of the City of Port Coquitlam in the Province of British Columbia, hereby certify that:
- I am a graduate of the University of British Columbia (1973)
   B.Sc., and Uneversity of London, Imperial College (1977)
   M.Sc., DIC.
- 2) I am a Fellow of the Geological Association of Canada.
- 3) I have worked continuously in Mineral Exploration since 1973 for McIntyre vines Limited, Cities Service Minerals Corp. and J.C. Stephen Explorations Ltd.
- 4) I personally worked on Golden Eagle between August 19 and 26, 1979. This report is based on an interpretation do data collected

Dated at North Vancouver, British Columbia

A.T. SHEARER, M.Sc., F.G.A.C.

### APPENDIX IV

ANALYTICAL PROCEDUTES

CHEMEX LABS LTD.
212 Brooksbank Avenue
North Vancouver, B.C.
V7J 2C1

AND GOLD - ARSENIC HISTOGRAMS

FEB./80

Joe Shearer - J. C. Stephen Expl.

#### GEOCHEM PROCEDURES

<u>PPM Antimony</u>: a 1.0 gm sample digested with conc. HCl in hot water bath. The iron is reduced to  $Fe^{+2}$  state and the Sb complexed with  $I^-$ . The complex is extracted with TOPO-MIBK and analyzed via A.A. Correcting for background absorption 0.2 ppm  $\pm$  0.2 Detection limit.

PPM Arsenic: a 1.0 gram sample is digested with a misture of perchloric and nitric acid to strong fumes of perchloric acid. The digested solution is diluted to volume and mixed. An aliquot of the digest is acidified, reduced with Kl and mixed. A portion of the reduced solution is converted to arsine with NaBH<sub>4</sub> and the arsenic content determined using flameless atomic absorption.

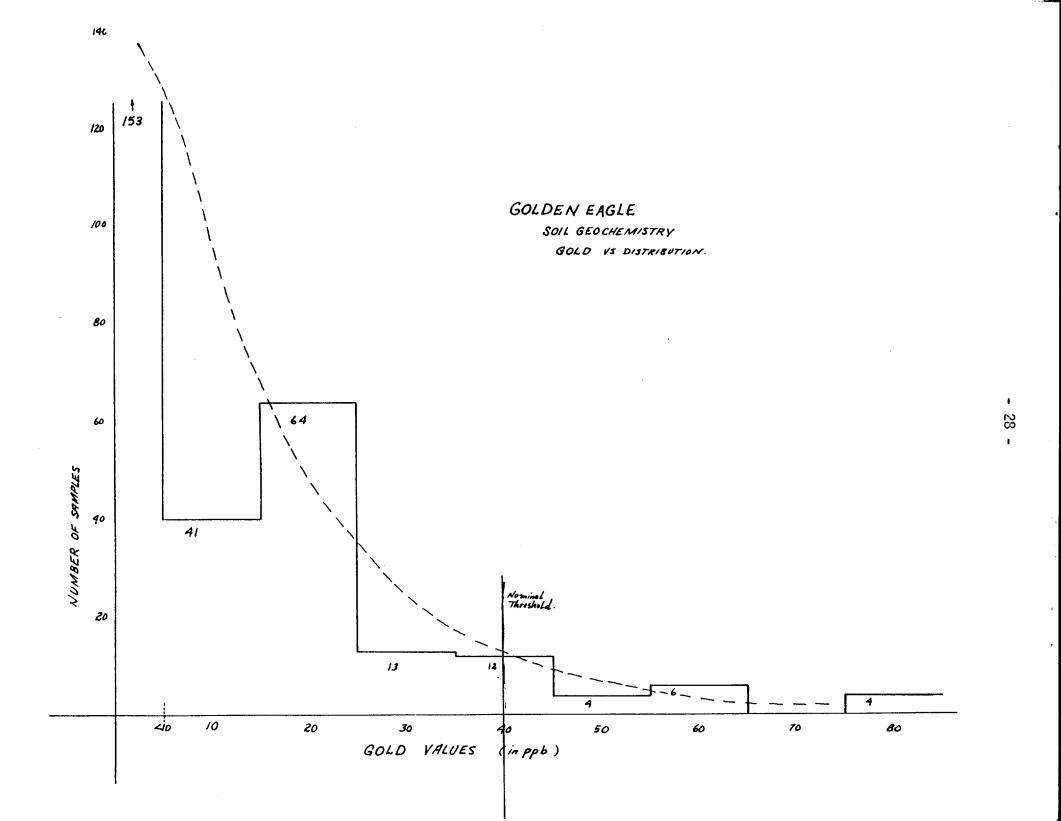
Detection limit - 1 PPM

PPB Gold: 5 gm samples ashed @800°C for one hour, digested with aqua regia - twice to dryness - taken up in 25% HCl<sup>-</sup>, the gold then extracted as the bromide complex into MIBK and analyzed via A.A. Detection limit - 10 PPB

#### ASSAY PROCEDURES

Gold: - Fire Assay Method.

0.5 assay ton sub samples are fused in litharge, carbonate and silicious fluxes. The lead button containing the precious metals is cupelled in a muffle furnace. The combined Ag & Au is weighed on a microbalance, parted, annealed and again weighed as Au. The difference in the two weighing is Ag.



### APPENDIX V

CERTIFICATES OF ANALYSIS

GOLDEN EAGLE 1979



TO:

## CHEMEX LABS LTD.

212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1

CANADA V
TELEPHONE:

984-0221

AREA CODE: TELEX:

043-52597

. ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

### CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50144

INVOICE NO.

32377

J.C. Stephen Explorations Ltd.

RECEIVED

Aug. 28/79

North Vancouver, B.C. V7P 1M9

1124 W. 15th St.

ANALYSED

Sept. 4/79

ATTN:		CC: Gr	and Forks	ANALYSED	Sept. 4//9
SAMPLE NO. :	PPM	PPB			
SAMPLE NO. :	As_	Au			
U-79 151	175	200	GOLDEN EAGLE		
A-79 1800	23	<10	<b>4</b>		
1904	9.0	20	•		·
1905	1.5	<10			
1906	1.5	<10			<del></del>
1907	1.5	<b>&lt;</b> 10			
1908	12	<10			•
1909	4.0	<10			
1910	36	40			
1911	102	10	<u> </u>		
1912	40	<10			
1913	54	<b>&lt;10</b>			
1914	34	<10			
1916	55	60			
1917	210	<10	•		
1918	170	<10			
1919	7.0	<10			
1920	4.5	<10			
1921	47	20			
1922	45	140			
1923	12	60			
1924	46	2550			
1925	9.0	60			
1926	18	200			
1927	<b>&gt;</b> 500	10000			
1928	35	80			
1929	43	<10		`	
1930	>500	>10000			
2005	72	40			
2006	27	10			
2007	21	<10		· <del>/* · · · · · · · · · · · · · · · · · · ·</del>	<del></del>
2008	5.0	10			
2009	3.0	<10			
2010	26	60			
2011	4.0	30			
2012	6.0	<10		<del></del>	<del> </del>
2013	53	<10			
2014	8.0	220	. •		
2015	5.0	20			
A-79 2016	7.0	<10			



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1

TELEPHONE:

984-0221

AREA CODE: TELEX:

604 043-52597 💂

. ANALYTICAL CHEMISTS

• GEOCHEMISTS

. REGISTERED ASSAYERS

### CERTIFICATE OF ANALYSIS

CERTIFICATE NO.

50145

J.C. Stephen Explorations Ltd. TO: 1124 W. 15th St.

INVOICE NO.

32377

North Vancouver, B.C.

RECEIVED

Aug. 28/79

V7P 1M9

ATTN:		CCL Grand Forks	ANALYSED	Sept. 4/79
<del></del>				
ł .	DDM	ממם		

CAMPIE NO	PPM	PPB	
SAMPLE NO. :	As	Au	
A-79 2017	12	20	
2018	20	10	
2019	16	<10	
2020	10	<10	
2021	15	30	
2022	13	<10	
2023	27	20	-
2024	15	20	
2025	12	<10	
2026	4.0	<10	
2027	5.5	<10	
2028	6.0	10	
2029	12	<10	
2030	4.0	<10	
2031	11	<10	
2032	11	20	
2033	5.0	10	
2034	4.0	20	
2035	4.0	20	
2036	6.5	1.0	
2037	5.0	20	
2038	7.0	20	
2039	5.0	640	
2040	4.5	<10	
2041	10	<10	
2042	3.0	<10	
2043	4.0	<10	
2044	4.0	20	•
2045	5.0	<10	
2046	4.5	<b>&lt;10</b>	
2047	5.0	<10	
2048	3.0	20	
2049	5.5	10	
2050	5.0	<10	
2051	2.0	20	
2052	8.0	<10	
2053	6.0	<10	
2054	6.0	<10	
2055	6.0	10	
A-79 2056	9.0	30	

CERTIFIED BY: ..



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA .

TELEPHONE:

V7J 2C1

984-0221

AREA CODE: TELEX:

604 043-52597

. ANALYTICAL CHEMISTS

• GEOCHEMISTS • REGISTERED ASSAYERS

#### CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50146

TO: J. C. Stephen Explorations Ltd.,

INVOICE NO.

32377

1124 West 15th St.,

RECEIVED

Aug. 28/79

North Yancouyer, B.C.

**V7P 1M9** ATTN:

CC. Grand Forks

ANALYSED	Sept.	4/	79
----------	-------	----	----

ATTN:		CC. Grand Forks	7	beper 4,75
SAMPLE NO. :	PPM	PPB		
SAMPLE NO. :	As	Au		
A-79 2057	4.0	< 10		
2058	3.0	< 10		•
2059	1.0	20		
2060	2.0	< 10		•
2061	4.5	< 10		
2062	3.0	20		
2063	4.0	20		-
2064	5.0	< 10		
2065	1.5	10		
2066	1.0	< 10		
2067	6.5	< 10		
2068	4.5	10		
2069	4.0	< 10		
2070	4.0	20	•	
2071	4.0	< 10		•
2072	5.0	< 10		
2073	4.0	< 10		
2074	2.0	< 10		•
2075	2.0	< 10		
2076	3.0	< 10		
2077	1.0	< 10		
2078	2.0	< 10		
2079	4.0	< 10		
2080	4.5	< 10		
2081	6.0	< 10		
2082	5.5	<b>1</b> 0		
2083	6.5	< 10		
2084	9.0	< 10	•	
A-79 2085	5.0	10		
A-79 2086	4.0	< 10		
GE OOW+OON	> 500	> 10,000		
50 <b>w+</b> 00 <b>n</b>	270	80		
100W+00N	15	< 10		
150W+00N	14	20		
200W+00N	12	40		
250W+00N	10	< 10		
300W+00N	16	10		
350W+00N	38	20		
400W+00N	42	20		
GE 450W+00N	23	20		

CERTIFIED BY: Haut Bielle



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1

TELEPHONE: 'MAREA CODE:

984-0221 604

TELEX:

043-52597

. ANALYTICAL CHEMISTS

• GEOCHEMISTS

. REGISTERED ASSAYERS

CC. Grand Forks

### CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50147

TO: J. C. Stephen Explorations Ltd.,

INVOICE NO.

32377

1124 West 15th St., North Vancouver, B.C.

RECEIVED

Aug. 28/79

V7P 1M9

ANALYSED Sept. 5/79

ATTN:		CC. Grand Forks	ANALYSED	Sept. 3/19
SAMPLE NO. :	PPM	PPB		
SAMPLE NO. :	As	Au		
GE 500W+00N	25	< 10		
550W+00N	28	< 10		
600W+00N	150	<b>&lt;</b> 10		
650 <b>w+</b> 00N	140	30		
700W+00N	104	20		
750 <del>0+</del> 00N	68	< 10		•
000 <del>+</del> 0008	47	10		-
850 <del>0+</del> 00N	81	.20		
900 <del>w+</del> 00n	50	< 10		· ·
50E+00N	10	< 10		·.
100E+00N	4.0	10		
150E+00N	6.5	< 10		
200E+100N	7.0	40	t	
250E+00N	8.0	< 10		
300E+00N	6.0	< 10		
350E+00N	4.0	< 10		
400E+00N	8.0	< 10		
450E+00N	11	30		
A500E+00N	5.0	20		
B500E+00N	260	30		
550E+00N	12	< 10		· · · · · · · · · · · · · · · · · · ·
GE 600E+00N	7.0	< 10	•	
GE 50N+650W	105	20		
100N+600W	14	40		
00W+200N	5.5	< 10		
50W+200N	7.5	< 10		
100W+200N	5.0	80		
150W+200N	4.0	< 10		
200W+200N	16	100		
A250W+200N	15	20		
B250W+200N	23	10		
300W+200N	22	100		
400W+200N	28	20		
450W+200N	28	40		
GE 550W+200N	51	140		
50E+200N	9.0	< 10		
100E+200N	9.5	10		
150E+250N	9.0	< 10		
200E+200N	7.0	20		
250E+200N	10	10		
GE 300E+200N	11	< 10		- <del></del>

CERTIFIED BY: Hank Bille



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1

TELEPHONE:

TELEX: 🛖

964-0221

604 043-52597

. ANALYTICAL CHEMISTS

. GEOCHEMISTS

. REGISTERED ASSAYERS

### CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50148

TO: J. C. Stephen Explorations Ltd.,

INVOICE NO.

32377

1124 West 15th St., North Vancouver, B.C.

RECEIVED

Aug. 28/79

V7P 1M9

CC. Grand Forks

ANALYSED

Sept. 5/79

ATIN:			CC. Grand Forks
SAMPLE NO. :	PPM	PPB	
	As	Au	
GE 350E+200N	7.0	< 10	
400E+200N	4.0	< 10	
450E+200N	4.0	< 10	
500E+200N	6.0	-10	
550E+200N	2.0	< 10	
GE 600E+200N	2.0	20	
GE OW+400N	11	10	-
50W+400N	9.0	< 10	
100W+400N	9.0	< 10	•
150W+400N	7.0	20	•
200W+400N	14	20	
250W+400N	7.0	10	
300W+400N	10	< 10	•
350W+400N	500	20	
400W+400N	20	< 10	
450W+400N	80	140	
500W+400N	75	30	
550W+400N	42	20	
600W+400N	. 27	< 10	
650W+400N	41	20	
GE 700W+400N	32	< 10	
50E+400N	6.0	< 10	
100E+400N	5.5	< 10	•
150E+400N	7.0	< 10	
200E+400N	7.0	< 10	
250E+400N	5.5	< 10	
300E+400N	5.5	20	
350E+400N	8.0	< 10	
400E+400N	5.0	20	
450E+400N	7.0	< 10	
500E+400N	4.5	< 10	
550E+400N 550E+400N	6.0		
GE 600E+400N	5.0	10	
GE 000E+400N		20	
	11 22	80	
50W+600N		< 10	
100W+600N	16	< 10	
150W+600N	40	60	
200W+600N	19	< 10	
250W+600N	37	10	
GE 300W+600N	23	20	



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1

TELEPHONE: AREA CODE:

TELEX:

604 043-52597

984-0221

. ANALYTICAL CHEMISTS

TO: J. C. Stephen Explorations Ltd.,

1124 West 15th St.,

• GEOCHEMISTS

. REGISTERED ASSAYERS

### CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50149

INVOICE NO.

32377

North Yancouve			RECEIVED	Aug. 28/79
y7P 1M9		CC. Grand Forks	ANALYSED	Sept. 5/79
	PPM	PPB		
SAMPLE NO. :	As	Au		
GE 350W+600N	19	20		
400W+600N	24	20		
450W+600N	27	< 10 ·		
	13	20		
500W+600N	47			
550W+600N	64	< 10	,	
600W+600N		10		
650W+600N	55 21	< 10		-
GE 700W+600N	21	< 10		
GE 00W+800N	25	< 10		
50W+800N	30	< 10		
100W+800N	9.0	< 10		
150W+800N	9.0	10		
200W+800N	9.0	< 10		
250W+800N	10	< 10		
300W+800N	12	< 10		
350W+800N	17	< 10		
400W+800N	20	< 10		
450W+800N	175	40		
GE 500W+800N	47	< 10		
GE 00W+1000N	7.0	< 10		
50W+1000N	6.5	< 10		
100W+1000N	6.0	20		
150W+1000N	. 19	< 10		
200W+1000N	20	< 10		
250W+1000N	90	20		
300W+1000N	31	180		
350W+1000N	34	160		
400W+1000N	22	50		
450W+1000N	10	< 10		
GE 500W+1000N	16	90		
GE 00W+1200N	35	< 10		
50W+1200N	3.0	< 10		
100W+1200N	2.0	10		
150W+1200N	2.0	10		
200W+1200N	8.0	20		
250W+1200N	5.0	< 10		
300W+1200N	4.5	< 10		
350W+1200N	6.0	10		
400W+1200N	8.0	50		
GE 450W+1200N	5.0	< 10		•
GE 4JOWTIZOON		~		

CERTIFIED BY: Hart Bielle



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1

TELEPHONE: AREA CODE: TELEX:

984-0221 604 043-52597

. ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

#### CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50150

TO: J. C. Stephen Explorations Ltd.,

INVOICE NO.

32377

1124 West 15th St., North Vancouver, B.C.

RECEIVED

Aug. 28/79

V7P 1M9

V7P 1M9 ATTN:		CC. Grand Forks	ANALYSED	Sept. 5/79
SAMPLE NO. :	PPM	PPB		
	As	Au	<del> </del>	
GE 500W+1200N	4.5	< 10		
00W+100S	13	< 10		
50S+100S	9.5	20		
100W+100S	10	30		
150W+100S	9.0	20		
200W+100S	19	20		
250W+100S	14	< 10		
300W+100S	11	10		
350W+100S	12	440		
400W+100S	65	20		
450W+100S	37	10		
500 <b>W+100S</b>	22	10		
550W+100S	36	20		
GE600W+100S	22	20		
GE50E+100S	10	< 10		
100E+100S	20	30	<del></del>	
150E+100S	32	< 10		
200E+100S	6.5	30		
250E+100S	4.5	< 10		
300E+100S	6.0	20		
350E+100S	10	30		
400E+100S	8.0	90		
450E+100S	2.0	10	·	
500E+100S	7.0	10		
550E+100S	4.0	10		
GE 600E+100S	7.0	< 10		<del></del>
GE 000E+100S	9.0	< 10		
50W+200S	11	< 10		
100W+200S	11	50		
150W+200S	11	30		
200W+200S	11	40		
250W+200S	10	200		
300W+200S	11	20		
	6.5	< 10		
350W+200S 400W+200S	6.0	10		
	6.5	< 10		
450W+200S	4.5	< 10 < 10		
500W+200S	6.5			
550W+200S	20	< 10		
GE 600W+200S	20	20		



212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. CANADA V7J 2C1

TELEPHONE: AREA CODE:

604 964-0221

TELEX: 043-52597

. ANALYTICAL CHEMISTS

• GEOCHEMISTS

. REGISTERED ASSAYERS

### CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 50151

TO: J. C. Stephen Explorations Ltd.,

INVOICE NO.

32377

1124 West 15th St.,

RECEIVED

Aug. 28/79

North Vancouver, B.C. ATTNV7P 1M9

ANALYSED

Sept. 5/79

		CC.	Grand	Forks
SAMPLE NO. :	PPM	PPB		
SAMPLE NO	As	 Au		

SAMPLE NO. :	PPM	PPB	
	As	Au	
GE 50E+200S	16	< 10	
100E+200S	11	20	
150E+200S	25	< 10	
200E+200S	47	20	
250E+200S	13	100	
300E+200S	11	20	
350E+200S	30	20	
400E+200S	20	20	
450E+200S	25	30	
500E+200S	9.5	50	
550E+200S	4.0	< 10	
GE 600E+200S	1.0	20	
GE 00W+300S	7.0	< 10	
50W+300S	7.0	10	
100W+300S	5.5	< 10	
150W+300S	9.0	100	
200W+300S	9.0	60	
250W+300S	1.5	10	
300W+300S	10	40	
350W+300S	20	20	
400W+300S	11	< 10	
450W+300S	10	20	
500W+300S	17	40	
550W+300S	10	10	
GE 600W+300S	9.5	< 10	
GE 50E+300S	10	10	
100E+300S	10	< 10	
150E+300S	13	40	
200E+300S	22	< 10	
250E+300S	5.5	< 10	
300E+300S	29	40	
350E+300S	12	20	
400E+300S	17	< 10	
450E+300S	11	20	
500E+300S	3.5	10	
550E+300S	2.5	10	
GE 600E+300S	45	<b>&lt;</b> 10	

