

COMINCO LTD.

EXPLORATION



WESTERN DISTRICT
23 SEPTEMBER 1982



GEOLOGICAL AND GEOCHEMICAL

ASSESSMENT REPORT

ON THE

SALMON CLAIMS

LOCATED AT

LATITUDE: 62°12'N; LONGITUDE: 134°09'W

IN THE

WHITEHORSE MINING DISTRICT, Y.T.

REPORT BY:

I.A. PATERSON.

091372

This ... by
the ...
und ... artz
Minis ...
represent ... amount
of \$ 2,800-

P. Watson

← Regional Management and
Geological Services for Commissioner
of Yukon Territory.

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FIGURE 1 Location Map, Salmon Claims

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SUMMARY

The Salmon property is located 40 km west of Faro, Yukon Territory. A mineralized skarn, at the contact of a quartz-feldspar porphyry is approximately 320 metres in length, 6 metres in thickness and contains magnetite, sphalerite, galena, molybdenite, fluorite, chalcopyrite and arsenopyrite.

A three day visit was made to the property to gather rock and soil samples and check the skarn and its inferred extensions for Au, Sn, Ag and W. No significant values were obtained for these elements and further work is not recommended on the property.

INTRODUCTION

The Salmon property was staked in August 1980 to cover a mineralized Zn-Pb-Ag skarn which was explored by Kerr Addison in 1964. It was felt that the skarn had potential for Au, Ag, Sn and W which had not been properly evaluated.

In order to assess the significance of these points, a visit was made to the property by I.A. Paterson (3 days), A.L. Wilkins (3 days) and D.L. Cooke (1 day) between July 30 and August 1, 1982. All three persons have a working address at 7th Floor, 409 Granville St., Vancouver, B.C. Helicopters based at Whitehorse and Carmacks were used for transportation to and from a fly camp situated near the Lake Zone (locality A - Map 1). Several lines of soil geochemistry were carried out, rock samples were obtained for geochemistry, and a summary map was completed.

LOCATION AND ACCESS

The Salmon property is located 40 km west of Faro, Y.T. and a few kilometers north of the Faro-Carmacks highway. Equipment for the fly camp was ferried by helicopter from Little Salmon Lodge.

HISTORY

The showing was staked by prospectors in 1952 and optioned to Prospectors Airways Ltd. which conducted geophysical surveys and drilled 20 holes (547 ft.) between 1953 and 1956. The adjoining ground was hand trenched and drilled (12 holes, 841 ft.) by MacLeod-Cockshutt Gold Mines Ltd. in 1956. All claims lapsed but were restaked by A. Kulan in 1962 and optioned to Kerr Addison until 1964 which performed mag, EM and SP surveys and drilled 4 holes (1,107 ft.). Atlas Exploration optioned the ground in 1965, flew airborne mag and EM and followed-up with ground mag, EM and soil geochem surveys.

GEOLOGY

The showing area is underlain by Devonian-Mississippian (?) limy chert overlain by a resistant limestone unit (Plate 1). These are folded or domed, into an open east-west anticline as delineated by repetition of a limestone which forms a ridge to the north and south of the showing. The core of the anticline is intruded by a Cretaceous-Tertiary quartz-feldspar porphyry elongated approximately along the fold axis. It outcrops along a valley and has a flat contact, thereby appearing to have been just unroofed. The young age and porphyritic texture with very fine grained groundmass suggest high level emplacement of the porphyry. The limy chert is banded pale green and tan brown and is extensively converted to garnet-diopside-calcite-quartz and massive magnetite skarn adjacent the intrusive contact. The chert is fractured and skarn alteration extends 60 m above the intrusive. The border phase of the intrusive is either fine grained and silicic (chilled) as in DDH 2 or has assimilated skarn producing a mixed zone as in DDH 3. Calc-silicate and magnetite skarn are well mineralized with pyrite, pyrrhotite, sphalerite and galena with lesser chalcopyrite, tetrahedrite(?), scheelite, fluorite, arsenopyrite and rare molybdenite. The porphyry contains phenocrysts of pink orthoclase to 1 cm, quartz to 5 mm, biotite to 2 mm and locally pyrite. Commonly the porphyry is pervasively altered; feldspar is chalky and kaolinized and biotite is altered to chlorite. The porphyry is fractured and quartz + fluorite veins are present but not abundant. They persist to the limits of drilling and contain sporadic pyrite, scheelite, chalcopyrite, sphalerite and molybdenite. Fluorite also occurs with fracture controlled skarn-sulphide-scheelite mineralization well above the porphyry.

GEOCHEMISTRY

The sampling was carried out at four localities (A to D in Plates 1 and 2). Geology, geophysics and soil geochemistry are shown in Plate 1 and rock geochemistry on Plate 2. Soil and rock analyses were carried out in the Cominco laboratory using standard procedures.

- A. This area includes the main showing described above and intersected in drill holes 1 and 2. High values for Cu, Pb, Zn, Ag, Mo and As were obtained reflecting the presence of chalcopyrite, sphalerite, galena, molybdenite and arsenopyrite identified in both drill core and surface exposures. All tungsten values were low and the best Au value (82 ppb) was obtained from a soil just beneath an arsenopyrite bearing vein cutting the intrusive.

3.

Sections of core from Kerr Addison drill hole #2 were analysed for Sn yielding the following results:


<u>Interval</u>	<u>Lithology</u>	<u>Sn</u>	<u>Method</u>
0 - 54'	mixed chert and skarn	254 ppm	rock geochemistry
54 - 108'	magnetite sulphide skarn	.02%	assay

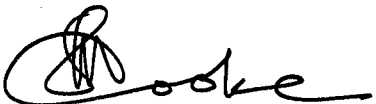
- B. Interest was focused on this area because of the presence of a gossan containing pyrite and pyrrhotite in altered siliceous cataclasite and magnetite bearing skarn adjacent to the inferred porphyry contact. Soils were low in Pb, Zn, Ag, As, Au and W but slightly anomalous in copper (100-215 ppm). Rocks were low in all the aforementioned elements.
- C. A soil line was carried out in this area to test the eastern continuation of the lake zone skarn. Interesting values were only obtained at the end of the soil line below the exposed mineralization discussed in Section A. The last three values in Cu, Pb, Zn, Ag and As.
- D. This area is located on a hill top, 1100 m east of the Lake zone. The main reason for interest in this area is the presence of a 5000 ppb Au value in a soil taken from a gossan in 1980. (Incidentally a repeat analysis of this sample gave <10 ppb Au). The area is underlain by gently dipping siliceous cataclasite and phyllite containing a few vuggy quartz + limonite + fluorite + calcite veins. A gossan layer 2 m wide and about 6 m long containing disseminated pyrrhotite in a siliceous cataclasite is also present. The presence of pyrrhotite is probably responsible for the magnetic anomaly along the ridge illustrated in Map 1.


The soil geochemical results proved to be uninteresting except for one sample (number 8200) from an area to the north of the ridge on strike with an inferred fault which passes through the valley immediately to the north of the Lake zone mineralized area. This sample was anomalous in Cu, Pb, Zn, Ag and As suggesting that the fault may be a control on the mineralization.

CONCLUSIONS

- A. The soil geochemistry for Au, Ag, W, Cu, Pb, Zn and As is generally uninteresting except in areas of known drilled mineralization.
- B. Samples of selected rocks from outside the drilled area have not demonstrated any interesting values for Au, Ag and W.
- C. Analyses of drill core indicated 30 m of .02% Sn in chert and magnetite sulphide skarn at the contact of the porphyry intrusive in drill hole number 2.

Report by: 
I.A. Paterson,
Project Geologist,
Exploration,
Western District

Endorsed by: 
D.L. Cooke,
Senior Geologist,
Exploration,
Western District.

Approved for
Release by: 
G. Harden,
Manager,
Exploration,
Western District.

A P P E N D I X I


AFFIDAVIT

In the matter of the act respecting quartz mining in the Yukon Territory and in the matter of a geological and geochemical report carried out in portions of the Salmon mineral claims located 40 km west of Faro in the Whitehorse Mining District of the Yukon Territory.

I, Ian A. Paterson of the City of Vancouver in the Province of British Columbia, make oath and say:

1. THAT I am employed as a project geologist by Cominco and, as such have a personal knowledge of the facts to which I hereinafter depose;
2. THAT included in this report and marked as Exhibit "A" is a true copy of expenditures incurred on a geological and geochemical survey of the Salmon mineral claims;
3. THAT the said expenditures were incurred between the 29th day of July and the 4th day of August for the purpose of mineral exploration on the aforementioned claims.

Dated this 28 day of September 1982 at Vancouver, B.C.



I.A. Paterson
Project Geologist.

EXHIBIT "A"
TO THE
GEOLOGICAL AND GEOCHEMICAL REPORT ON
THE SALMON CLAIMS 43 TO 56 SITUATED AT
LATITUDE 62°12'N; LONGITUDE 134°09'W
IN THE
WHITEHORSE MINING DISTRICT, Y.T.

STATEMENT OF EXPENDITURES
FOR THE PERIOD 29th JULY TO THE 4th AUGUST

Salaries

I.A. Paterson (3 days field, 2 days report writing)	\$1,180
A.L. Wilkins (3 days field)	372
D.L. Cooke (1 day field)	300

Camp Costs

9 man days	180
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Transportation


helicopter - 1 hour at \$600/hour	600
truck - 5 days at \$ 30/day	150

Analyses

rocks: 11 samples for Cu, Pb, Zn, Ag, Au, As, Sn	195.25
soils: 40 samples for Cu, Pb, Zn, Ag, Au, As, Mo, W	<u>714.00</u>

TOTAL \$3,691.25

This is Exhibit "A" to the affidavit relating to the Geological and Geochemical Survey declared before me the 28 day of September 1982.



I.A. Paterson,
Project Geologist.

A P P E N D I X II


STATEMENT OF QUALIFICATIONS

I, Ian A. Paterson, with business address at 700-409 Granville Street, Vancouver, British Columbia, do hereby certify that I have supervised the field work and have assessed and interpreted the data resulting from this geological and geochemical survey on the Salmon mineral claims.

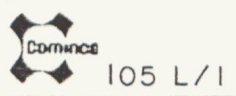
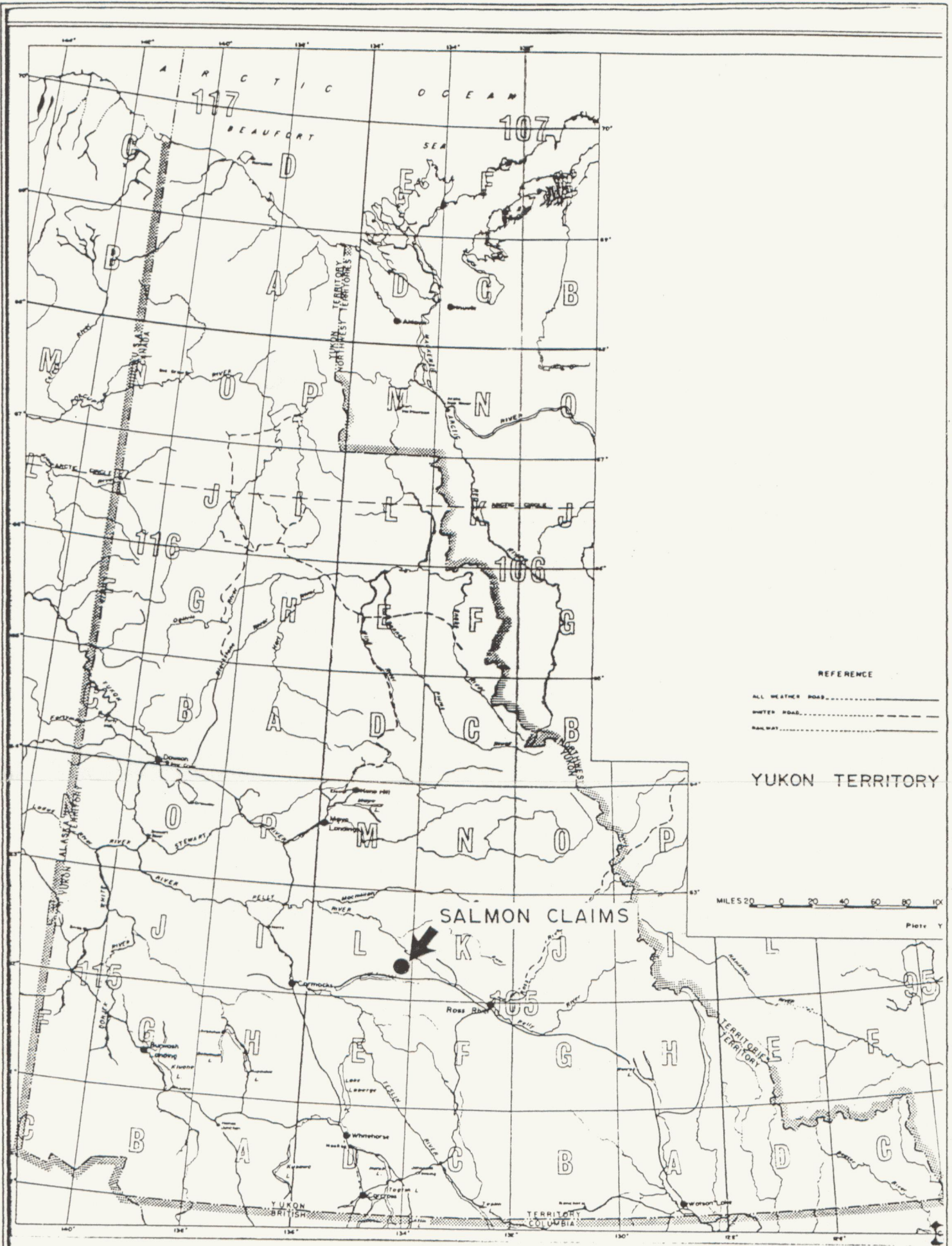
I also certify that:

1. I graduated from the University of Aberdeen, Scotland with a B.Sc (Hons.) degree in 1967.
2. I graduated from the University of British Columbia with a Ph.D degree in 1973.
3. I am a registered Professional Engineer of the Province of British Columbia, a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.
4. I have engaged in my profession since my graduation in 1973.

Respectfully Submitted:



Ian A. Paterson,
Project Geologist.



Drawn by: IAP		Traced by:	
Revised by	Date	Revised by	Date

SALMON CLAIM GROUP
 Location Map **091372**
 To accompany assessment report

Scale: _____ Date: Sept., 1982 Plate Fig. 1

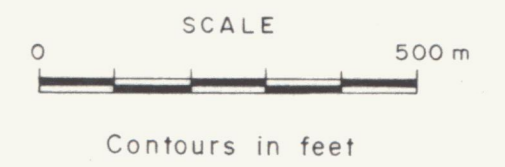
LOCALITY	SAMPLE No.	Ppm				Ppb	Ppm		
		Cu	Pb	Zn	Ag	Au	Mo	As	W
A	8234	1100	17200	7900	480	82	518	3400	<2
	8235	324	3210	4720	17.5	80	122	195	<2
	8236	664	1180	9050	12.1	<10	37	<2	<2
	8237	1620	121	3780	2.5	24	25	7	<2
	8238	168	117	158	2.1	<10	4	7	<2
	8239	490	507	3350	6.6	<10	16	323	2
	CL530					<10 (<10)			
CL531					20 (<10)				
CL532					5000 (<10)				

LOCALITY	SAMPLE No.	Ppm				Ppb	Ppm		
		Cu	Pb	Zn	Ag	Au	Mo	As	W
D	8200	165	1970	1220	4.7	<10	4	142	10
	8201	17	13	95	<.4	<10	6	8	8
	8202	29	7	15	<.4	<10	3	5	<2
	8203	17	21	149	<.4	<10	8	5	<2
	8204	45	22	81	<.4	<10	9	10	<2
	8205	84	76	130	.7	<10	10	13	4
	8206	20	10	61	<.4	<10	6	7	6
	8207	287	17	132	<.4	<10	22	4	8
	8208	27	21	78	<.4	<10	6	5	4
	8209	29	15	78	<.4	<10	6	8	8
	8210	25	9	51	<.4	<10	5	2	2
	8211	21	18	76	<.4	<10	4	4	4
	8212	19	17	84	<.4	<10	4	6	6
	8213	22	17	196	<.4	<10	4	7	7
8214	12	10	80	<.4	<10	2	28	2	



LEGEND

- TERTIARY**
- 3a 3b 3a Quartz + feldspar porphyry
 - 3b Biotite granite porphyry
- PALEOZOIC**
- 2 Massive crystalline limestone
 - 1a 1b 1a Siliceous cataclasite
 - 1b Siliceous cataclasite with skarn ± magnetite
- SYMBOLS**
- 8202 Soil sample location and sample number (Lab. Ref.: Job V81-0204 S; Job V82-0341 S)
 - A to D Localities referred to in text
 - po, py Pyrrhotite, pyrite
 - ▲ Breccia Zone
 - ↙ Strike and dip of foliation
 - ⊕ Horizontal foliation
 - === Geological contact (observed, approx., inferred)
 - ~ Fault (inferred)
 - Diamond drill hole
 - Area of magnetic anomalies
 - Outline of S.P. anomalies
- KERR ADDISON 1964



LOCALITY	SAMPLE No.	Ppm				Ppb	Ppm		
		Cu	Pb	Zn	Ag	Au	Mo	As	W
B	8225	56	13	18	<.4	<10	2	4	<2
	8226	17	13	48	<.4	<10	<2	3	2
	8227	13	9	60	<.4	<10	<2	5	<2
	8228	2	<.4	35	<.4	<10	<2	6	<2
	8229	215	11	39	<.4	<10	24	6	<2
	8230	204	49	48	1.6	20	9	2	<2
	8231	134	52	63	<.4	20	3	3	<2
	8232	105	59	72	<.4	20	6	<2	<2
	8233	36	20	57	<.4	<10	3	<2	<2

LOCALITY	SAMPLE No.	Ppm				Ppb	Ppm		
		Cu	Pb	Zn	Ag	Au	Mo	As	W
C	8215	8	34	112	<.4	<10	<2	6	2
	8216	2	4	7	<.4	<10	<2	8	<2
	8217	<1	<4	3	<.4	<10	<2	<2	<2
	8218	13	32	86	<.4	<10	4	9	<2
	8219	1	6	7	<.4	<10	<2	8	<2
	8220	2	9	9	<.4	<10	<2	9	<2
	8221	1	<4	4	<.4	<10	<2	7	<2
	8222	6	78	126	<.4	<10	5	11	2
	8223	60	368	724	2.2	<20	6	118	2
	8224	34	246	115	3.1	<20	9	22	<2

Base map: Blow-up from Canada Dept. of Mines map 105 L/1, Scale - 1:50,000 (Truitt Creek, Y.T.)

SALMON CLAIMS 091372 105 L/1

Drawn by: IAP	Traced by: <i>[Signature]</i>
Revised by: _____	Date: _____
Revised by: _____	Date: _____

GEOLOGY, SOIL GEOCHEMISTRY

Includes notes on Kerr Addison geophysics
(To accompany assessment report)

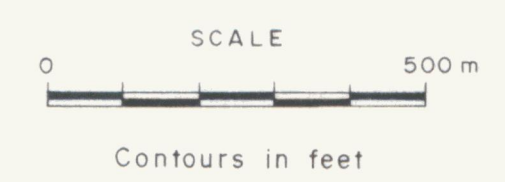
Scale: 1:10,000 Date: JUNE, 1982 Plate: 1

Sample Number	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	As ppm	Sn(4) ppm	Rock Description
6919	693	12	96	2.0	200	97	<20	brecciated gossaned leached veins: Fluorite + calcite + quartz
6920	372	<4	36	<.4	<10	10	<20	leached friable limonite veins.
6921	286	<4	25	<.4	20	2	21	gossaned layer parallel to foliation in cataclasite
6922	175	15	24	<.6	<10	3	75	pyrrhotite bearing chert
6923	50	8	30	<.4	<10	5	<20	disseminated pyrrhotite in laminated siliceous cataclasite
6924	62	<4	17	<.4	<10	3	54	disseminated pyrrhotite in laminated siliceous cataclasite
6925	32	<4	38	<.4	<10	4	92	pyrite + pyrrhotite in skarny siliceous cataclasite + magnetite
6926	17	7	20	<.4	<10	2	65	pyrite + pyrrhotite disseminated in siliceous cataclasite.
6927	296	<4	200	<.4	<10	7	141	5' section of magnetite + sulphide skarn from DDH-4.
6928	128	49	399	2.8	<10	12	1698	fluorite + galena + pyrite + limonite vein.
6929	5490	E49400	E72800	351.0	4500	E127600	28	arsenopyrite + galena + sphalerite + chalcopyrite.



SYMBOLS

- ◻ 64-4 Diamond drill hole
- △ 6919 Rock location and sample number
(Note: Lab. Ref. No. - Job V82 - 034 R)
- A to D Localities referred to text



SALMON CLAIMS				091372 105 L/1
Drawn by:	Traced by: <i>J. M. [Signature]</i>			ROCK GEOCHEMISTRY (To accompany assessment report)
Revised by	Date	Revised by	Date	
IAP	Sept/82	<i>J.M.</i>	Sept./82	
Scale: 1: 10,000		Date: JUNE, 1982		Plate: 2

Base map: Blow-up from Canada Dept. of Mines map 105 L/1, Scale - 1: 50,000 (Truitt Creek, Y.T.)