

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**14,221**

PROSPECTING AND GEOCHEMICAL REPORT

ON THE

I AM 50 CLAIM

FOR

CHEVRON CANADA RESOURCES LIMITED

BY

GARRATT GEOSERVICES LTD.



FILMED

NEW WESTMINSTER M.D.

LAT.: 49 degrees, 21' 30" N.

LONG.: 121 degrees, 52' 30" W.

NIS: 92 H/5 W

G.L. GARRATT, P.GEOL., F.G.A.C.

MARCH, 1985.



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## Introduction

The author and geologist Frank Gigliotti undertook a geochemical sampling and prospecting program on the I AM 50 claim between March 19 and 22, 1985. The objective of the program was to evaluate possible extensions of known mineralization on the I AM 51 to 56 claims to the north. Volcanic flows and pyroclastics of the Harrison Formation underlie the property and have been cut by fault/fracture controlled hydrothermal systems. Partial silicification and quartz veining are associated with pyrite and minor amounts of chalcopyrite and sphalerite. Geochemical sampling resulted in moderate but well defined anomalies that indicate a need for further sampling and evaluation of the property.

## Location, Access and Physiography

The property lies immediately north of Weaver Lake, approximately two kilometers west of Camp Cove on Harrison Lake. Access can be gained by old logging roads departing either from the Hemlock Valley ski resort access road to the west, or from the Harrison West road to the east. Road washcuts close to the property allow access by foot only. The Hemlock Valley and Harrison West roads are accessed by Highway 7 at Harrison Mills. The property lies in the central portion of map sheet 92 H/5 W at a latitude of 49 21' 30" north and a longitude of 121 52' 30" west.

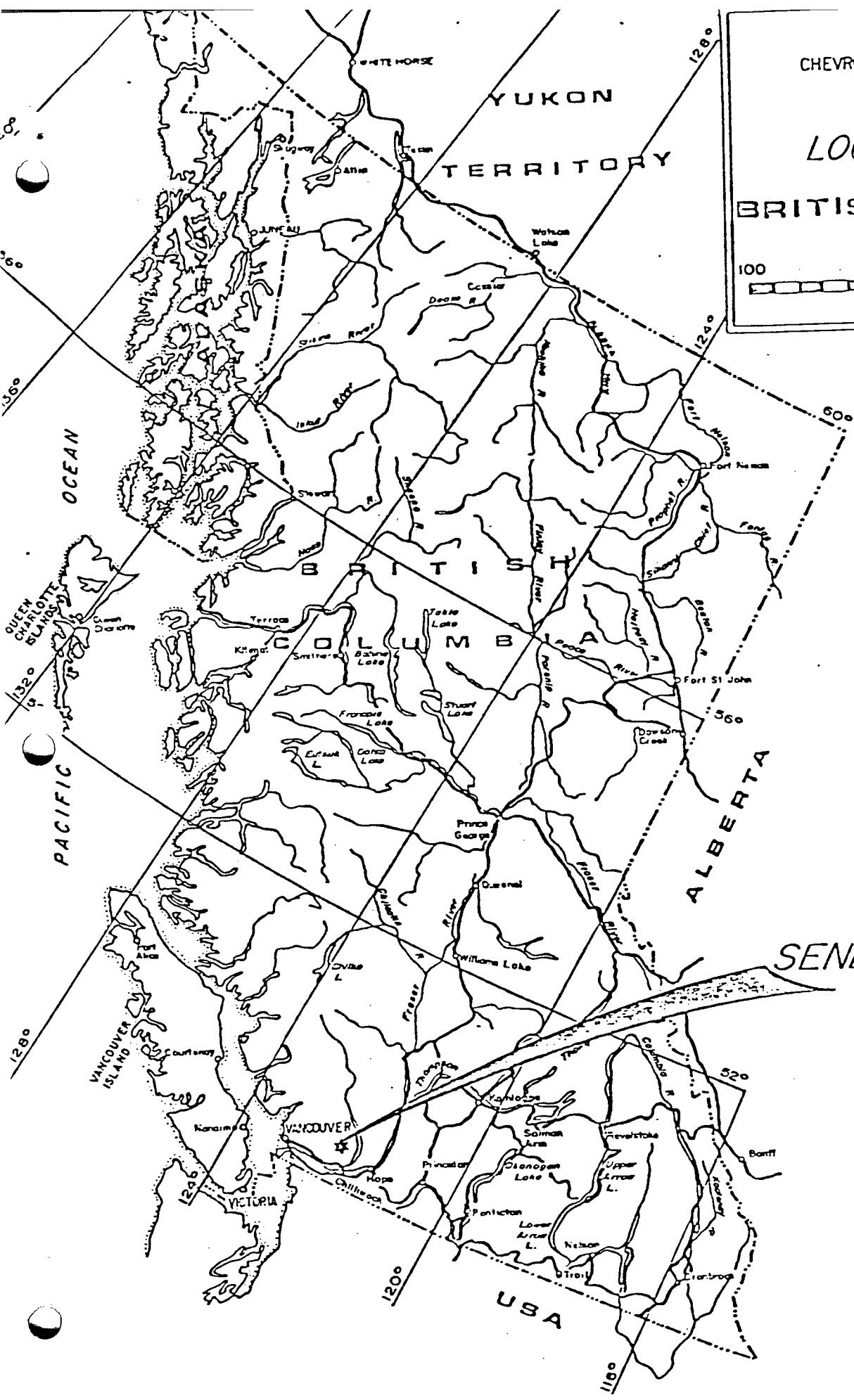
Elevations on the property range from 255 meters at Weaver Lake to over 800 meters at the northern border of the claim. The relatively steep slopes on the property were logged in 1963; a heavy second growth now covers the area. All drainages on the property flow onto Weaver Lake which in turn drains southward to the Harrison River. Rainfall is heavy in this region and there existed between 0.5 and 1.5 meters of snow on the property at the time of our visit. The drainages have high gradients and are subjected to dramatic flooding, resulting in a significant depletion of fine sediment from the stream beds.

## Ownership

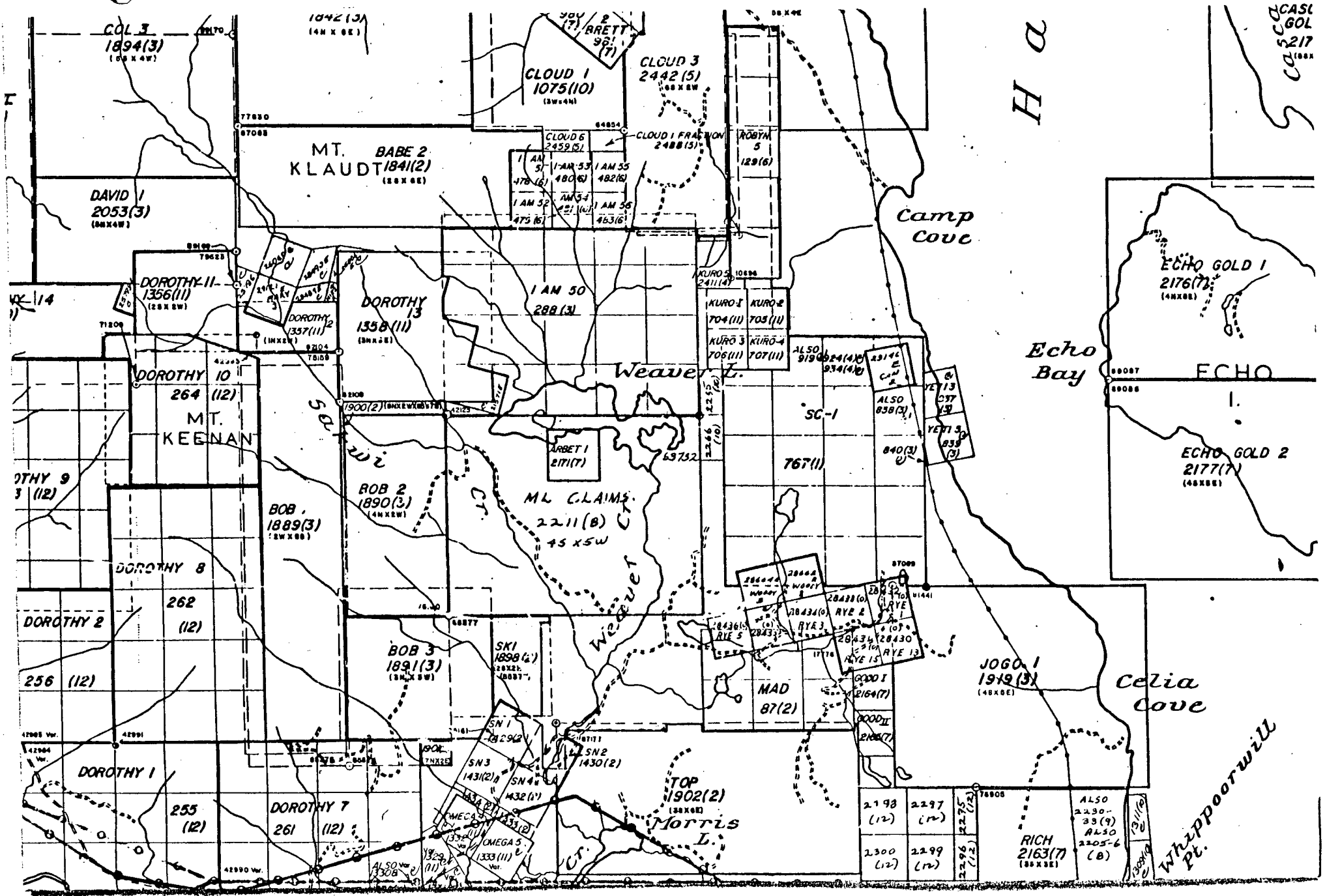
The I AM 50 claim, record number 288(3), is comprised of twenty units and is owned by Chevron Canada Resources Ltd., whose office is located at 1900-1055 West Hastings St., Vancouver, B.C. The claim forms the easternmost extension of a group of claims known as the Agassiz-Weaver property which is held by Chevron and encloses the Seneca volcanogenic massive sulphide deposit.

FIG. I  
CHEVRON STANDARD LIMITED  
MINERALS STAFF

*LOCATION MAP*  
BRITISH COLUMBIA



*SENECA  
PROPERTY  
& I AM 50 CLAIM*



LOCATION MAP - I AM 50 CLAIM

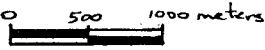
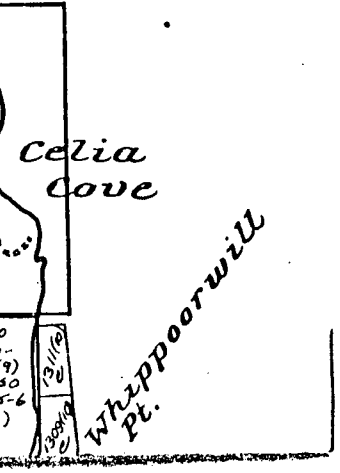
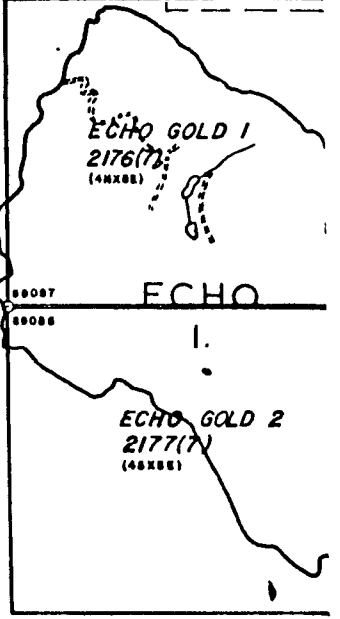
SCALE: 1 : 50,000

NEW WESTMINSTER M.D.

92 H/5W

CASI  
GOL  
217  
(68X6)

H A



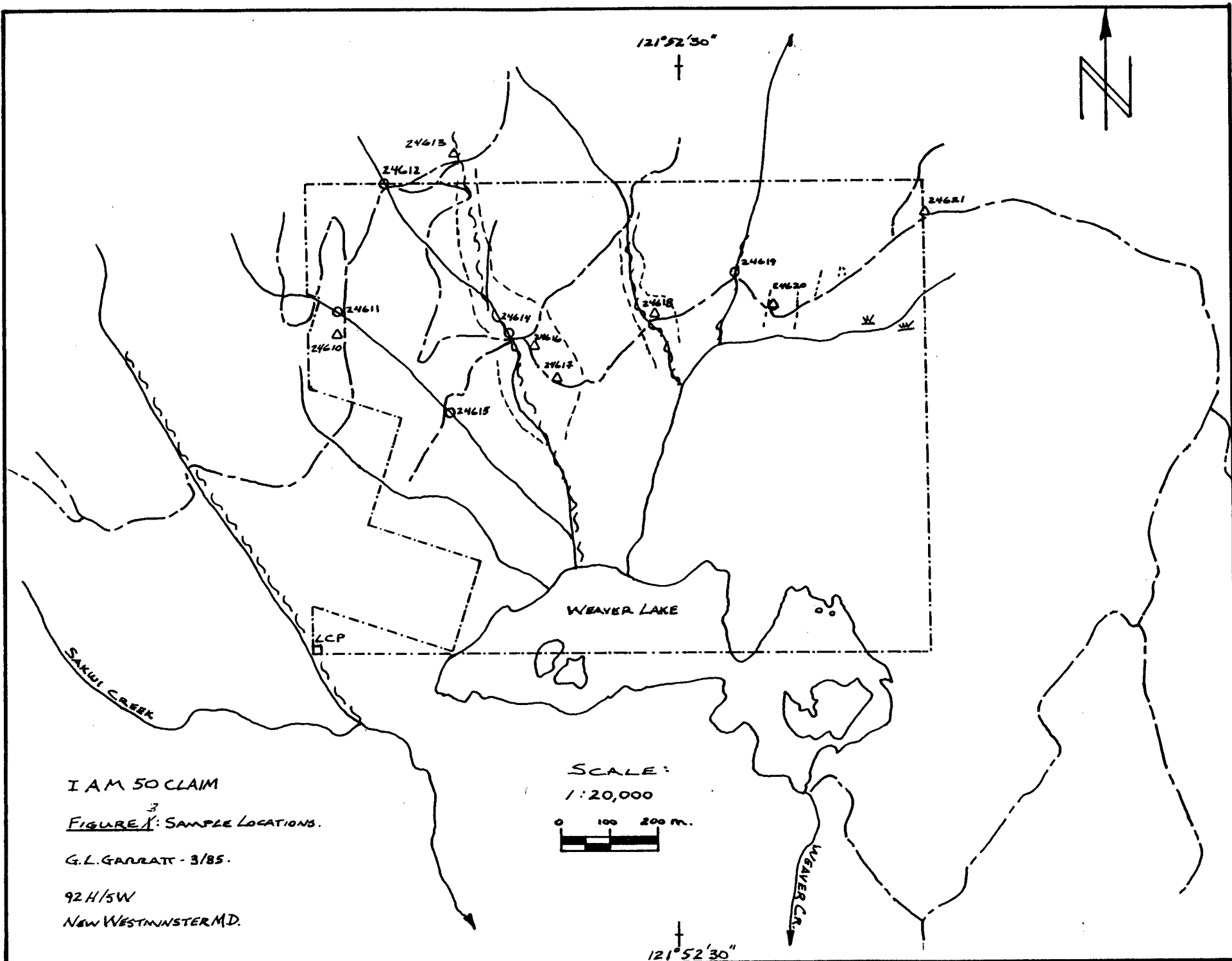
## History

Prospecting since the early 1900's has been reported for this area (Arscott, 1978), but recorded exploration appears to have begun in 1974 on the DS-Stoney claims which covered the northern portion of the I AM 50 claim. In 1978 Chevron undertook geological mapping on the claim and in 1979 undertook a geochemical soil sampling and electromagnetic survey on a part of the claim, the grid being centered on the I AM 51 to 54 claims to the north. Previous exploration focused on the potential of the Harrison volcanics to host Kuroko-type massive sulphide deposits. This work keyed on the definition of the fault-related quartz stringer mineralization as being "footwall-type" mineralization, possibly associated with a high level rhyodacitic intrusion that might be interpreted as a vent area, proximal to massive sulphide deposition. In this context, tuffaceous sediments and pyroclastics up-section were considered to define a favourable exploration target. Considerable exploration has been carried out on claims northward from the I AM 50 claim and have defined extensive areas of similarly styled mineralization as that exposed on the I AM 50 claim and briefly described in this report.

## Geology and Mineralization

The I AM 50 claim is underlain by the Harrison Formation of bimodal volcanic affinity, which is believed to be middle Jurassic in age. Along the northern boundary of the claim is exposed a series of basaltic to rhyolitic flows, flow breccias and bedded tuffs. A distinctive intermediate flow breccia, composed predominantly of five to twenty centimeter rounded feldspar porphyry fragments set in a matrix of the same material, forms prominent bluffs in the northwestern part of the claim. Very fine grained to lapilli tuffs underly this breccia, and one exposure of a coarser multilithic pyroclastic was also observed. Below the exposed section of tuffs, massive basaltic to andesitic flows dominate the outcrop exposures. Previous workers have mapped a pyritic rhyodacitic sub-volcanic intrusion to the immediate north of the claim. Alteration in the flows appears to be consistently expressed by the presence of epidote and locally heavy chlorite concentrations; zeolite and potassium alteration were observed locally. Minor drag folding or warping was noted adjacent fault/shear zones.

Two large zones of alteration and related mineralization were observed;



I AM 50 CLAIM

FIGURE 1: <sup>3</sup>SAMPLE LOCATIONS.

G.L. GARRATT - 3/85.

92H/5W

NEW WESTMINSTER M.D.

I AM 50 CLAIM

SYMBOLS FOR FIGURES 1, 2, & 3.

FIGURE 1: SAMPLE LOCATIONS








-  - Claim boundary
-  - Stream
-  - Road
-  - Fault zone
-  - Zone of hydrothermal alteration
-  24611 - Heavy mineral stream sediment sample site
-  24610 - Rock sample site

FIGURE 2: AIRPHOTO LINEAMENT STUDY




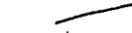
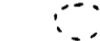

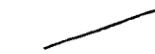
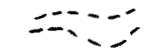
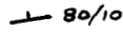
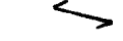
-  - Claim boundary
-  - Road
-  - Stream
-  - Airphoto lineament
-  - Airphoto circular feature

FIGURE 3: DATA SUMMARY

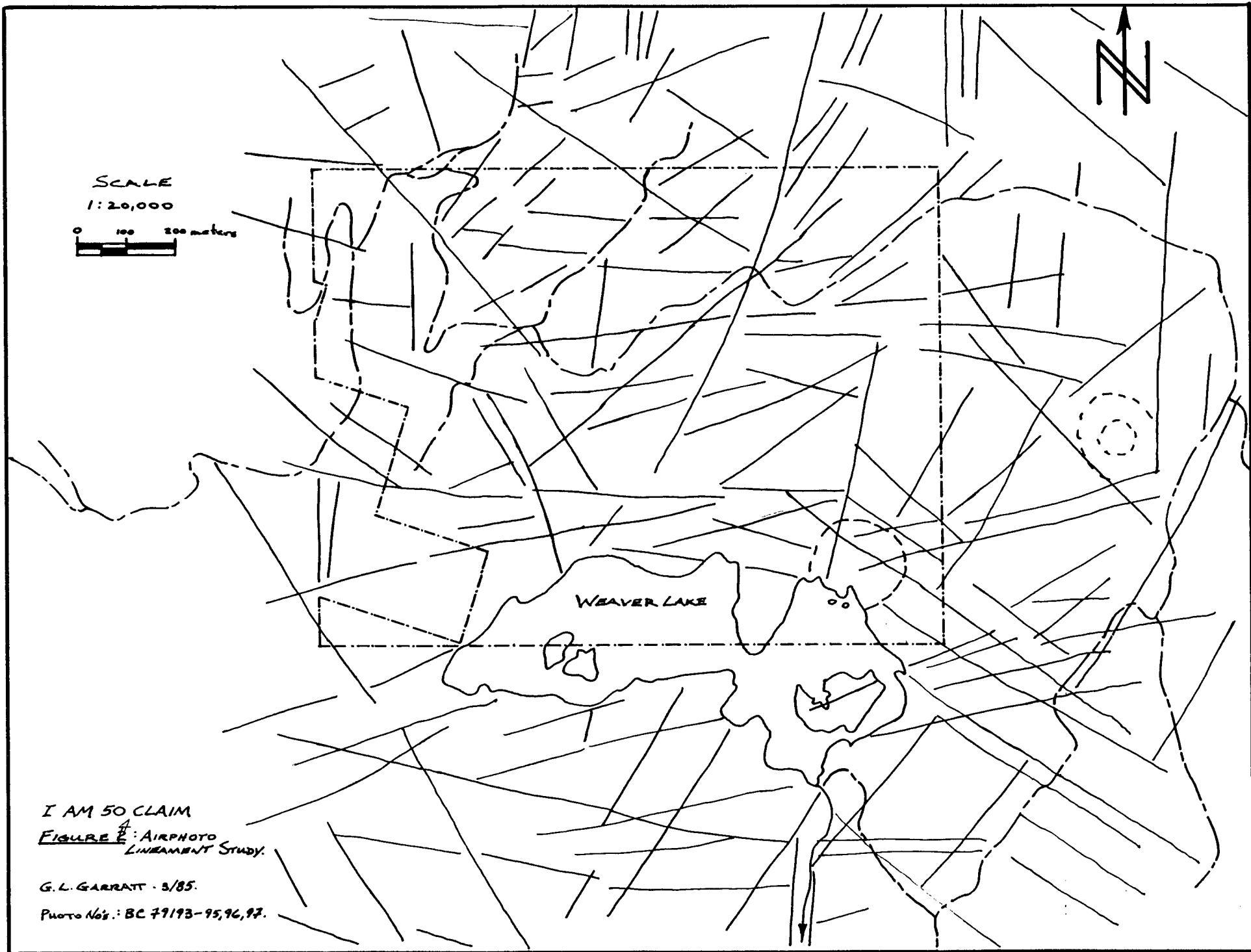
-  - Claim boundary
-  - Major airphoto lineaments
-  - Zone of hydrothermal alteration
-  80/10 - Bedding attitude (strike/dip)
-  - Shear/fault orientation



these are marked on Figure 1. (sample sites 24616, 24618). These zones lie along fault drainages and represent strong fracture zones associated with the faulting, along which hydrothermal fluids escalated. The resultant alteration consists of local silicification, bleaching (clay alteration), quartz veining and the local occurrence of epidote, chlorite and sericite. The degree of alteration is relative to the proximity to, and intensity of, fracture or shear zones, and diminishes away from these. The most intensely altered zones, where original rock textures are completely destroyed, are commonly expressed by bright yellow to orange gossans. Sulphide mineralization is directly related to the alteration and varies from broad pyritization (1 to 10%) to vuggy quartz veining with minor but locally flashy disseminations or aggregates of sphalerite, chalcopyrite and pyrite (& galena). The pyrite is commonly coarse subhedral, but fine grained disseminations were noted. Quartz veining varies from white to grey, massive to vuggy (crystal lined), and often appears to cross-cut alteration zones. The veining is generally sporadic and thin, though stockworks develop locally. Smaller gossans were observed, as at site 24620, and these are comprised of a number of small shear/alteration zones of limited (1 to 2m) extent which, when viewed from a distance, appear to attain widths of up to fifteen meters. At site 24619, only rare thin fracture-alteration zones were observed. Sample 24621 is a fine grained, dark grey, calcareous unit containing 0.5 to 1.0% finely disseminated pyrite. This unit may belong to the package of rocks tentatively mapped as upper Triassic Cultus Formation by Monger (1969).

#### Airphoto Lineament Study

British Columbia airphotos (numbered 79193-95,96,97) of the property area were viewed stereoscopically (with a Geoscope mirror stereoscope) and lineaments observed were traced on a mylar overlay on photo number 96. This result is displayed on Figure 2. The scale of the airphotos is approximately 1:20,000 allowing relatively easy transference of data to the base map of the same scale; it is very difficult to avoid error in positioning of lineaments, however, due to the obvious constraints on control points on the base map and distortion on the photos. Lineaments were defined as linear features which transect portions of the images and which are most likely of a natural origin, versus man-made features or variations in image quality due to its production. In this context, vegetation patterns have been found to commonly enhance lineament definition, as well as more obvious features such as drainages and cliffs; preference is given to those structures which transect obvious geomorphic or other geologic



SCALE  
1:20,000



WEAVER LAKE

I AM 50 CLAIM

FIGURE 4: AIRPHOTO  
LINEAMENT STUDY.

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PHOTO NO'S.: BC 79193-95, 96, 97.

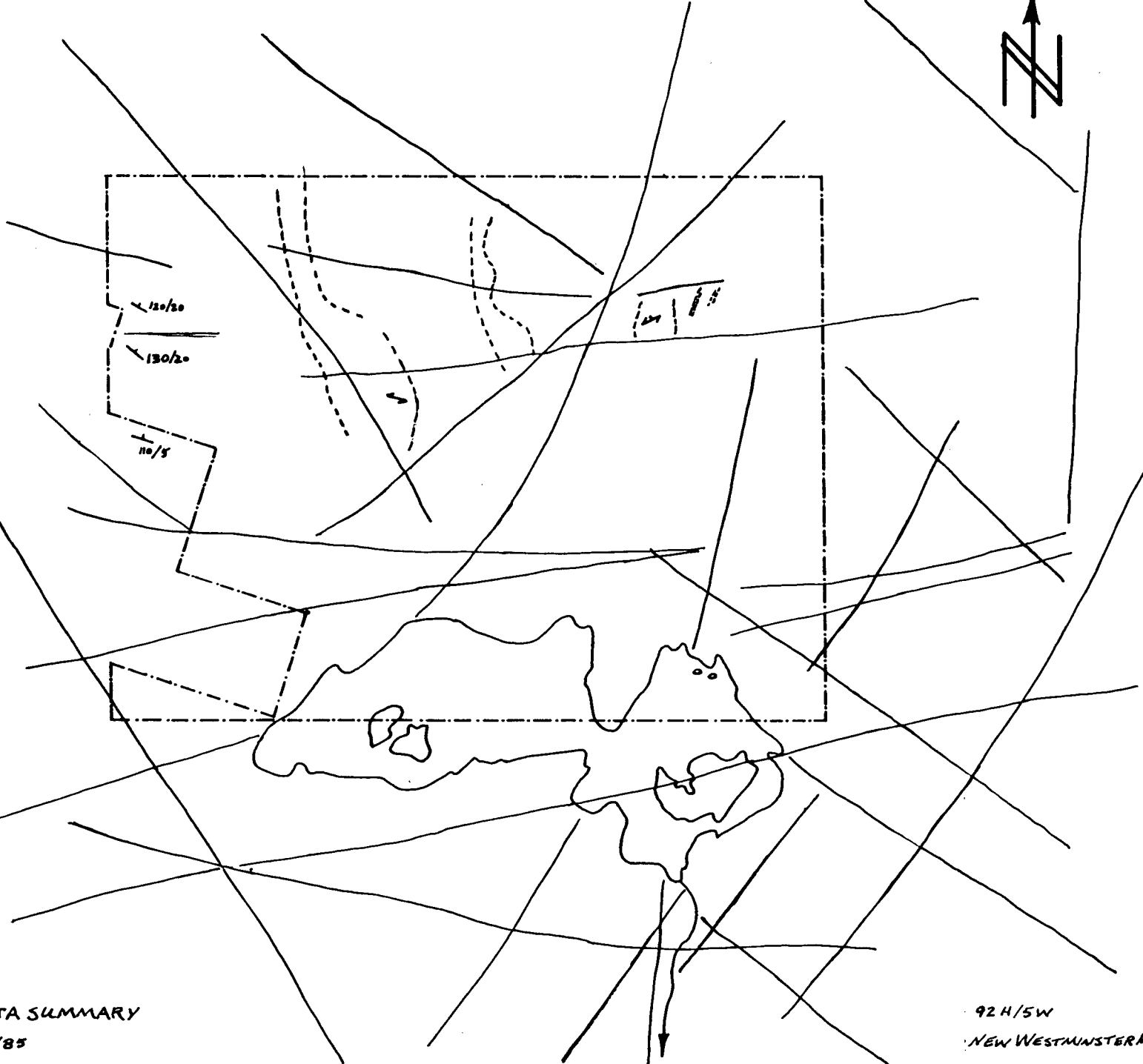
features.

The presence of circular features is common to airphoto analyses and two such features were discovered here. Along the northeastern shore of Weaver Lake one of these is visible as an apparent depression with concentric vegetation growth patterns. It appears that the feature may be fault bound on the west and it is interpreted that this circular feature possibly represents a structurally induced depression within which the circular patterns observed were formed by surficial or geomorphologic processes. The second circular feature, northeast of Weaver Lake, is a more positive one. This doubly concentric feature occurs near a height of land and may represent an intrusive plug; although this feature is off the claim, a field check might prove interesting. An alternate interpretation would be fault induced slumping, creating an apparent circular feature by coincidence.

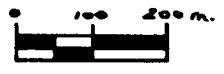
Figure 2 displays the lineaments in the area and Figure 3 depicts the stronger, or major, lineament trends. Four dominant orientations are evident:

1. East-west: 80 to 95 degrees
2. Northeasterly: 48 to 60 degrees
3. Northerly: 5 to 15 degrees
4. Northwesterly: 305 to 325 degrees

Some general conclusions can be made from these structural patterns. It seems evident that the east trending structures partially disturb the continuity of the NW and NE structures in the claim area, suggesting a younger activity on the former. Additionally, the configuration of Weaver Lake and its placement between East trending lineaments suggests a structurally induced depression or graben. With respect to block faulting and graben/horst development, the NE-NW lineaments southeast of Weaver Lake are the most obvious on the photos; distinct rectangular topographic highs are separated by similarly distinct rectangular topographic lows. The very strong NW trending lineament at the western edge of the area parallels the Sakwi Creek fault/lineament just off the map and is itself an expression of faulting (observed). By overlaying Figure 2 on Figure 1, the placement of the shear/alteration zones might be interpreted as fracture zones developed at junctures of conjugate fault sets lying between two major northwest trending lineaments. More information on a broader regional scale, including data on similar zones to the north of the claim, is needed to clarify this interpretation.



SCALE :  
1:20,000



I AM 50 CLAIM  
FIGURE 2: DATA SUMMARY  
G.L. GARRATT - 3/85

92 H/SW  
NEW WESTMINSTER M.D.

## Geochemical Sampling

### Heavy Mineral Stream Sediment Sampling(HM)

Five HM samples were obtained by shovelling stream sediments into a -40 mesh screen and recovering the fines which were submitted to Min-En Labs in North Vancouver for analysis. Twenty-seven elements were measured by the inductively coupled argon plasma technique (ICP) using acid digestion. The analysis involved the non-magnetic portion of the sample. Gold was determined by the fire method.

The most distinctly anomalous sample was number 24619 which indicated anomalous values in : Ag(7.9), As(214), B(24), Ba(204), Co(147), Cu(383), Fe (463,030), K(610), Mn(698), Ni(11), P(1760), U(16), and Au(285ppb). This sample showed a moderately anomalous Zn value (230) and anomalously low Mg(3460) and Ca(1620).(all values in ppm unless stated). Interestingly, the drainage this sample was obtained from showed the least alteration and mineralization in outcrop and float. This steep walled creek appears to be fault controlled though no strong evidence of shearing was observed at the sample site. Comparing this sample result to sample 24614 which represents a highly altered drainage area, the strongly anomalous values are supplemented by much lower Pb and Cd values; perhaps 24619 indicates a different style of mineralized source, and certainly indicates mineralization not observable at the sample site.

More realistic comparisons can be made with the other HM samples. Samples 24611 and 24615, and 24612-24614 form upper and lower elevation sites on sub-parallel drainages. It is apparent that the lower elevation sites are generally anomalous compared to their higher level counterparts. The 611-615 pair shows a dramatic increase in Ba, Fe, K, P, Pb, U, V, Zn, and Au downslope and the 612-614 pair shows sharp increases in As, Ba, Cd, Cu, Fe, P, Pb, and Zn. Although there are not enough samples to form a reliable statistical base, it is apparent that Ba, Cu, Fe, K, P, and Zn may be the most consistent elements to indicate anomalies, while As, Co, Pb, and Au also display some consistency. It is obvious by sample 24619 that strong anomalies are supported by all of these elements plus Ag, Mn, Ni, P, and U and are easily defined as anomalous.

### Rock Sampling

Seven rock (grab) samples of approximately 1 kilogram weight were obtained. Samples 24616, 24617, 24618 and 24620 were taken from highly altered pyritic zones which have associated sphalerite, chalcopyrite, barite and quartz in highly variable and minor amounts. All contain moderately anomalous Ba while 24616 has high Zn, Mn and Cd and 24620 also has a moderately high Mn content.

Samples 24610 and 24613 are of argillaceous tuff which have been moderately altered and pyritized by the prevailing hydrothermal system in the area; the latter sample has moderately anomalous Mn, Pb, Ni, and Zn values. Sample 24621 is of a pyritic, calcareous, fine grained clastic rock and does not appear to be anomalous in any element, which might indicate the the pyrite is of a diagenetic origin.

### Discussion of Results

The area underlying the I AM claim has been affected by strong regional faulting, resulting in the development of locally intense fracture and shear zones. These structural features appear to have controlled the locus of hydrothermal alteration and associated mineralization. The style and character of these mineralizing systems is known to be regionally common and is nearly identical to Tertiary sub-volcanic systems observed by the author in and along the Coast Ranges. Previous workers have put forth the model of footwall stockwork to Kuroko type massive sulphide deposits for the mineralization in this area. Although this model can not be completely ruled out, an alternate concept is favoured. The mineralogy of the occurrences suggests a mesothermal origin, indicated by the presence of chlorite-epidote alteration. A large monzonitic intrusion is known to occur to the northwest of this area and may be a related event though the intrusive is not known to be mineralized. It is suggested that Cretaceous and/or Tertiary block faulting, in part reactivating older fault systems, is responsible for controlling the observed mineralizing system. These vein/alteration systems appear to transect a large portion of the known section, showing no particular stratigraphic preference. There may be a variety of stockwork type occurrences in the region and these may be of significantly different ages, perhaps in part relating to the Harrison volcanism.

The rock and HM sampling indicates a broad area of anomalous terrain, giving a potential for the presence of a precious metal deposit. The structural and geologic setting suggest that a vein or bonanza type gold-silver-base metal deposit with significant strike continuity would form the target model. Although the rock sampling failed to produce encouraging precious metal values, the HM results indicate that a great deal more sampling and prospecting should be undertaken. Sample 24619 in particular shows an area where follow-up work is needed. The marked increase in element values going downstream on the two streams in the northwest part of the property offers another area for further exploration.

Appendix 1 : Statement of Qualification

Statement of Qualification

I, Glen L. Garratt, residing at 2540 Skeena Drive in the City of Kamloops, Province of British Columbia, do hereby certify that:

1. I am a practising geologist and have been since 1972 after completing a B.Sc. in geology at the University of British Columbia.
2. I am a member in good standing of the Association of Professional Engineers, Geologists and Geophysicists of Alberta and a Fellow of the Geological Association of Canada.
3. The conclusions and statements made in this report are my own and are the result of my own field work and data interpretation.



A handwritten signature in cursive script, appearing to read "G. L. Garratt".

G.L. Garratt, P.Geol., F.G.A.C.  
March, 1985.



Appendix 2 : Certificates of Analyses

*MIN-EN Laboratories Ltd.*

*Specialists in Mineral Environments*

Corner 15th Street and Bewicke  
705 WEST 15TH STREET  
NORTH VANCOUVER, B.C.  
CANADA V7M 1T2

ANALYTICAL PROCEDURE REPORT FOR ASSESSMENT  
WORK - 26 ELEMENT ICP

Ag, Al, As, B, Bi, Ca, Cd, Co, Cu, Fe, K, Mg, Mn, Mo,  
Na, Ni, P, Pb, Sb, Sr, Th, U, V, Zn

Samples are processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with HNO<sub>3</sub> and HClO<sub>4</sub> mixture.

After cooling samples are diluted to standard volume. The solutions are analysed by Computer operated Jarrell Ash 9000ICP. Inductively coupled Plasma Analyser. Reports are formatted by routing computer dotline print out.

COMPANY: GARRATT GEOSERVICES

MIN-EN LABS ICP REPORT

(ACT:GEO27) PAGE 1 OF 1

PROJECT NO:

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2

FILE NO: 5-83R

ATTENTION: G.L. GARRATT

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

DATE: MARCH 27, 1985

(VALUES IN PPM)

\* TYPE ROCK GEOCHEM \*

	24610	24613	24616	24617	24618	24620	24621
AG	2.1	1.7	1.2	.9	.6	1.2	1.0
AL	18850	14450	14430	4130	5690	8740	15750
AS	23	9	6	49	1	8	13
B	12	8	7	1	2	4	9
BA	30	38	92	89	69	110	41
BE	<.1	.4	.3	.1	.4	.5	.3
BI	11	4	5	1	2	3	4
CA	4130	2380	2620	1330	1670	16170	42520
CD	.5	1.0	9.9	.6	<.1	.9	.3
CO	12	9	15	11	9	15	12
CU	29	34	23	13	19	19	15
FE	42510	28280	42450	29340	24130	35960	36830
K	570	1330	810	1900	1650	1510	920
LI	10	<10	<10	<10	<10	<10	<10
MG	9400	11610	16530	1560	4360	8430	13310
MN	486	1008	1289	89	271	899	490
MO	2	4	4	4	1	2	1
NA	210	50	250	120	150	110	140
NI	3	15	3	3	3	1	6
P	410	460	500	410	460	650	550
PB	9	43	20	18	18	26	12
SB	<1	2	1	2	1	3	1
SR	32	25	42	22	12	24	43
TH	1	2	2	1	1	3	2
U	5	4	6	3	4	12	10
V	107.8	16.6	41.7	9.3	18.0	26.0	33.6
ZN	44	263	1637	20	53	45	36
AU-PPB	1	3	1	5	1	3	1

COMPANY: GARRATT GEOSERVICES

MIN-EN LABS ICP REPORT

(ACT:GE027) PAGE 1 OF 3

PROJECT No:

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

FILE No: 5-83HM

ATTENTION: G.L. GARRATT

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

\*TYPE HM NON MAG\*

DATE: MARCH 27, 1988

(VALUES IN PPM )	AG	AL	AS	B	BA	BE	BI	CA	CD	CO	CU	FE
24611	1.3	16120	6	9	42	.2	9	6270	1.9	18	29	47060
24612	1.2	17200	19	11	56	.3	7	7050	.4	32	86	71720
24614	2.9	10860	44	12	103	.1	8	4650	10.5	56	444	175070
24615	1.9	17060	10	17	119	.3	12	10470	2.9	28	6	114240
24619	7.9	10920	214	24	204	.2	5	1520	.8	147	383	463030

COMPANY: GARRATT GEOSERVICES

MIN-EN LABS ICP REPORT

(ACT:GE027) PAGE 2 OF 3

PROJECT No:

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

FILE No: 5-83HM

ATTENTION: G.L. GARRATT

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

\*TYPE HM NON MAG\*

DATE: MARCH 27, 1988

(VALUES IN PPM )	K	LI	MG	MN	MO	NA	NI	P	PB	SB	SR	TH
24611	270	10	8090	438	4	80	5	260	14	<1	44	2
24612	200	<10	6680	492	5	40	6	400	20	<1	91	3
24614	370	<10	4440	322	2	50	<1	760	159	1	55	2
24615	530	<10	5950	494	1	50	7	530	32	<1	70	4
24619	610	<10	3460	698	4	40	11	1760	11	<1	75	<1

COMPANY: GARRATT GEOSERVICES

MIN-EN LABS ICP REPORT

(ACT:GE027) PAGE 3 OF 3

PROJECT No:

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

FILE No: 5-83HM

ATTENTION: G.L. GARRATT

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

\*TYPE HM NON MAG\*

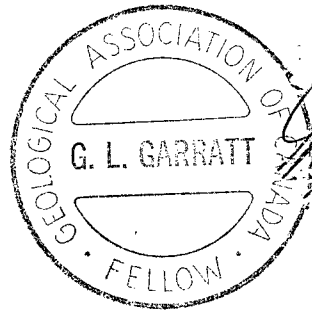
DATE: MARCH 27, 1988

(VALUES IN PPM )	U	V	ZN	AU-PPB	HM%
24611	<1	74.6	142	1	4.75
24612	6	88.6	72	22	3.94
24614	6	60.3	1716	18	3.94
24615	9	211.6	276	43	2.29
24619	16	55.5	230	285	4.01

Appendix 3 : Statement of Expenditures

Statement of Expenditures

G.L. Garratt : 6 days @ \$250.00/day	\$1,500.00
Geologist/Assistant : 3.5 days @ \$175.00/day	612.50
Truck rental and fuel : 4 days @ \$45.00/day; \$80.00	260.00
Room and board :	237.11
Geochemical analyses : 7 rocks @ \$14.85	
5 HM's @ \$4.00	273.95
Report preparation, secretarial, drafting	221.55
	<hr/>
Total Expenditure:	\$3,105.11
	<hr/>



Appendix 4 : References

References

Arscott, D. : 1979-Geochemical, Geophysical, and Geological Report; I AM, SIR, Mary J, and DOT claims; Chevron Standard Limited.

1978-Geological Mapping of the I AM 50 Claims; Chevron Standard Limited.

Monger, J.W.H. : 1969- G.S.C. Paper 69-47: Hope Map-Area, West Half, British Columbia.