·78-#978#57. +

1978 GEOCHEMICAL SURVEY (Extension of 1977 Program)

I AM CLAIMS

HARRISON LAKE AREA NEW WESTMINSTER MINING DIVISION 49<sup>0</sup> 22' N 121<sup>0</sup> 55' W 92H/5

) **...**, **.** 

Owners: I. & D. Miller Operator: Chevron Standard Limited Author: D. Arscott

27 September, 1978



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## APPENDIX

Analyses Cost Statements References Certificate

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## ILLUSTRATIONS

Fig. 1. Location Map

2a.	Soil	Sampling	-	Cu	
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- c, " " Mo
- d. " " Backup data



Page

#### INTRODUCTION

The soil survey begun in 1977 was continued this year (between 27th July and 27th August). Soil samples were collected by the Minerals Staff of Chevron Standard Limited.

The primary intent of the survey was to detect any sub-outcropping copper and zinc sulphides associated with the underlying volcanic rocks. However, some previous high molybdenum values in silts suggested the use of analyses for this metal also.

Inasmuch as this survey is an extension of the 1977 work, substantial parts of this report are reproduced verbatim from the previous one.

#### LOCATION AND ACCESS

The I AM claims straddle the access road to the Hemlock Valley Ski Resort, 14 km NNE of Harrison Mills, and 110 km E of Vancouver. Hence year-round access to the claims is excellent, and in addition a fair portion of the property is laced by a network of both current and disused logging trails.

The location of the property, and principal access road, is shown on Fig. 1.

#### CLAIMS

The claims comprising the property are as follows, with expiry dates as they were at 1 January 1978:



CLAIM NAME	RECORD_NO.	WORK AND RENTAL DUE DATE
I AM #1 to #3	18161 - 18163	23 Dec. 1978
I AM #4	18164	23 Dec. 1979
I AM #9	21569	13 May, 1979
I AM #10, #11	21570, 21571	27 May, 1979
I AM #12 to #22	25795 - 25805	13 May, 1979
1 AM #23, #24	26060, 26061	l June,1979
SIR #4, #5 FR, #6 FR	26912 - 26914	7 Sept.1979
DOT #1 to #3	28488 - 28490	31 May, 1979
MARY J #1 to #4	29118 - 29121	2 May, 1979
	TOTAL - 30 claims	

The I AM and the SIR claims are registered in the name of Isaac Miller and the DOT and MARY J claims in the name of Dorothy. Specifically not included is the new I AM 50 claim staked in Spring of 1978. This will be the subject of a separate report.

## <u>HISTORY</u>

The previous work in the claims area may be summarized as follows:

1916 to present	-	Prospecting,pitting, and trenching by I. Miller, various years.
1966	-	Staking of core of current claims to cover mineral- ization exposed during logging road construction.
December 1971	-	Soil survey by Cominco Ltd. covering parts of I AM 1 and 21, and SIR 5 FR. 245 samples analysed for Cu, Zn, Pb, Mo and Ag.

- August, 1972 Minor stream sediment sampling and a short VLF-EM survey by Rio Tinto Canadian Exploration Ltd.
- October, 1976 Induced Polarization and VLF-EM surveys by Amax Potash Ltd. 1.6 line km covering I AM 1, 2, 3 and 4 claims.
  - Geological mapping, 1 in. = 400 ft., of same general area.
- December, 1977 Soil sampling, 283 samples, by Chevron Standard Ltd.

### GEOLOGY

### Regional Geology

The property is near the south end of the Chehalis pendant. a roughly oblongshaped belt composed largely of volcanics and sediments of volcanic affiliation, and believed to be of Jurassic age (approximately 140 million years).

These rocks can be subdivided along the following general lines:

nales and argillites
ndesitic and argillites
inor shales and argillites
nyolitic pyroclastics
acitic tuffs
idesitic flows and pyroclastics
reywackes
nale
onglomerate

- 3 -

These formations are cut by stocks, dykes, and sills of intermediate to felsic composition.

In detail the geology is extremely complex and difficult to unravel, and the available geological maps of the area are as varied as the number of geologists that made them (see references).

#### Local Geology

The rocks underlying the I AM claims are presumed to be near the upper contact of the Harrison Lake Formation.

Central to the claims is a rhyolite volcanic breccia, covering a lens shaped area some 1200 m by 4000 m in extent. This is bordered to the south by cherty tuffs and siltstones, and to the north by a large area of andesite breccia. Some feldspar porphyry and diabase dykes intrude the rhyolite and andesite.

This geology was mapped by Amax Potash Ltd. geologists in 1976, and is in general confirmed by my own observations. An extremely simplified version of their mapping is reproduced in Fig. 2d as background data to the soil survey.

The rhyolite has been interpreted as a volcanic dome, a view which would be consistent with the presence of both the andesite and the sediments overlying it, according to the classic volcanogenic geologic concept. In this respect the property has some similarity to the Seneca prospect 6 km to the SW, although the rhyolite does not seem to be as extensive on the I AM claims.

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### Mineralization

Small stringers and disseminations of sphalerite, chalcopyrite and pyrite are present in several places within the rhyolite. These are insufficient in themselves to constitute "economic" mineralization, but could possibly represent a feeder zone for more massive mineralization at the rhyolite/ sediment contact.

#### GEOCHEMISTRY

#### Procedure

Soil samples were collected mainly from "B" horizon material at depths of 10 to 20 cm. They were transferred to paper sample bags, and shipped to Vangeochem Lab Ltd. of North Vancouver. Here they were dried, sieved, and the minus 80 mesh fraction analysed by standard atomic absorption techniques for Cu, Zn, and Mo.

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Sampling points were controlled mainly by the previously established (1976) grid, with extension of some of the previous cross lines by tape and compass. The copper and zinc analyses were subjected to a statistical study (not shown here), which suggested threshold values of 50 ppm (parts per million) for the former, and 200 ppm for the latter. The molybdenum values were mainly too low to be treated the same way and an arbitrary figure of 15 ppm used as threshold.

The values were plotted and contoured (Figs. 2a, b, and c), using one contour at the above thresholds, and one lower contour to outline trends. The

- 5 -

contouring was carried out with the known geological trends in mind and is therefore biased. However the result was an excellent match of geochemistry and geology, and similar conclusions would have in any case been arrived at by 'blind' contouring. Last year's results were reincorporated into the maps as contours only, without supporting analyses.

### Results

The fairly close correlation of copper and zinc soil anomalies with each other and their generally sharp edges suggest that there has been little significant downslope movement of metals in the soil.

The central part of the grid (sampled in 1977) is characterized by Zn rich anomalies mainly attributable to disseminated and veinlet mineralization in the rhyolite breccia. The western part, however, has yielded more Cu rich soil anomalies which, in one case at least, can be related to a pyritic fault zone within an andesitic volcanic breccia. A sample of the gouge from this 15 cm wide fault zone yielded 115 ppm Cu and 3850 ppm Zn.

A table summarizing the main anomaly characteristics is enclosed.

#### CONCLUSIONS

The potential for volcanogenic mineralization, as implied by the geological similarity of this property to the Seneca, has been neither confirmed nor denied by this year's work. The central anomalies could well represent "footwall" type mineralization of the Kuroko type. The western anomalies do not, and appear to have an independent origin in later veining.

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## SUMMARY OF MAIN SOIL ANOMALIES

<u>Centre</u>	<u>Approximate Extent</u> m.	<u>Peak</u> <u>Cu</u>	<u>Values,</u> <u>Zn</u>	<u>ррт</u> <u>Мо</u>	Probable Source	
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38W 85	300 x 50	115	570	5	<b>N N N</b> N	
36W IN	250 x 30	137	304	4	41 M IF	
84W 11S	+300 x 60	210	620	26	?	
78W 17S	200 x 60	170	260	-	Pyritic fault zone in andesite brec	cia
96W 10S	+300 x +50	356	220	4	?	
80W 26S	small	108	240	6	Pyritic veinlets in andesitic host	



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-// ACCOUNT WITH- Chevron Standard Ltd., 901 - 355 Burrard Street, Vancouver, B. C. VGC 2G8     REC L 1 - 78 30 0194 Page 1 of 2 Samples Arrivet: Sept. 8, 1978 (#000 - 100 fm) fm	Certificate of C	Geoche	1521 PEMB NORTH VA CANADA <b>mical Aj</b>	NCOUV V7P 2S3	AVE., ER, 8.C., 3 • 54	T A Decialising in 7	ELEPHONE: 986- REA CODE: 604 race Elements Ana	5211 Ivses •
Sample Marking         Mo           Sample Marking         ppm           12 W 9 N         2           10         1           11         1           12 I         1           13         2           14         2           13         2           14         2           15 W 15 N         2           BL 16 W         1           16 W 1 N         3           2         3           3         1           4         1           5         2           6         1           7         1           8         2           9         2           10         1           11         1           12         2           13         1           14         1           15         1           16 N         1           17         1           18         1           9         1           11         1           12         1           13         1           14 <th>-IN ACCOUNT WITH- Chevron Standard Ltd #901 - 355 Burrard S Vancouver, B. C. M Attention:</th> <th>d., Street, V6C 2G8</th> <th>RECET SEP 27</th> <th>1978 S SIJII INDARD LIM INDARD OFFIC IVER OFFIC</th> <th>Report No: Samples Arriv Report Comp For Project: Analyst: Invoice #</th> <th>78 30 ed: Sept. leted: Sept. M 480 2220</th> <th>019<b>A</b> Page 1 8, 1978 26, 1978 Job # 7</th> <th>of 2 8-227</th>	-IN ACCOUNT WITH- Chevron Standard Ltd #901 - 355 Burrard S Vancouver, B. C. M Attention:	d., Street, V6C 2G8	RECET SEP 27	1978 S SIJII INDARD LIM INDARD OFFIC IVER OFFIC	Report No: Samples Arriv Report Comp For Project: Analyst: Invoice #	78 30 ed: Sept. leted: Sept. M 480 2220	019 <b>A</b> Page 1 8, 1978 26, 1978 Job # 7	of 2 8-227
Sample Marking         ppm           12 W Y N         2           10         1           11         1           12 W Y N         2           11         1           12 W Y N         2           11         1           12 W Y N         2           13         2           14         1           12 W 15 N         2           12 W 15 N         2           13         1           2         3           3         1           4         1           5         2           6         1           7         1           8         2           9         2           10         1           11         1           12         2           13         1           14         1           15         1           16         1           17         1           18         20 W           10 W 18 N         1           12         2           14         1           <		Mo	10. VK.	<b>.</b>				
12       W 7 N       2         10       1         11       1         12       1         13       2         14       2         12       1         13       2         14       2         15       1         16       1         1       1         16       1         17       1         18       2         10       1         11       1         12       2         10       1         11       1         12       2         13       1         14       1         15       1         16       1         17       1         18       1         19       1         11       1         12       2         13       1         14       2         15       1         16       1         17       1         18       1         17       1         <	Sample Marking	ppm						
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12     1       13     2       14     2       12 W 15 N     2       BL 16 W     1       15 W 1 N     3       2     3       3     1       4     1       5     2       6     1       7     1       8     2       9     2       10     1       11     1       12     2       13     1       14     1       12     2       13     1       14     1       15     1       16 W 16 N     1       31 20 W     2       20 W 1     2       13     1       14     1       15     1       16     1       17     1       16     1       17     1       16     1       17     1       16     1       17     1       16     1       17     1       18     1       19     1       11     1       12     2       13 N     3	11	1						
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A. J. C. M     J       11     1       16 W 1 N     3       2     3       3     1       4     1       5     2       6     1       7     1       8     2       9     2       10     1       11     1       12     2       13     1       14     1       15     1       14     1       15     1       16     1       9     1       14     1       15     1       16     1       17     1       18     1       9     1       11     1       12     1       13     1       14     2       15     1       16     1       17     1       18     1       19     1       11     1       12     2       13     1       14     1       17     1       18     1       19     1       12     2       1	14 12 ม 15 N	2						
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3     1       4     1       5     2       6     1       7     1       8     2       9     2       10     1       11     1       12     2       13     1       14     1       15     1       16     1       9     1       11     1       12     2       20     2       20     2       14     1       15     1       16     1       9     1       11     1       12     2       13     1       14     2       15     1       16     1       17     1       14     2       15     1       16     1       17     1       12     2       24     13       13     3       14     2       15     1       16     1       17     1       18     7       19     1       10     1       12     <	2	3						
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8         2           9         1           10         1           11         1           12         2           13         1           14         1           15         1           16         1           31.20 W         2           20 W 1 N         1           9         1           11         1           12         2           20 W 1 N         1           11         1           12         1           13         1           14         2           15         1           16         1           17         1           16         1           17         1           12         2           24 W 11 N         3           3         3	7	1						
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15       1         16 W 16 N       1         9       2         20 W       2         20 W       2         20 W       1         8       1         9       1         11       1	14	1		. 				
LOW LOW     1       BL 20 W     2       20 W     1       20 W     1       9     1       9     1       11     1       12     1       13     1       14     2       15     1       16     1       17     1       20 W 18 N     R       12     2       24 W 11 N     2       22     2       24 W 13 N     3	15			:	I	•		
20 W     1 N     1       8     1       9     1       11     1       12     1       13     1       14     2       15     1       16     1       17     1       10 W 18 N     1       12     2       14     2       15     1       16     1       17     1       18 N     1       12     2       2     2       4 W 13 N     3	LOW LON AT. 20 W			 !	:			
8     1       9     1       11     1       12     1       13     1       14     2       15     1       16     1       17     1       20 W 18 N     r.       12     2       4 W 11 N     2       12     2       24 W 13 N     3	20 W 1 N		·· <del>···</del>	••	· · <u>-</u>	<u> </u>	· ·	· - <u> </u>
9       1         11       1         12       1         13       1         14       2         15       1         16       1         17       1         20 W 18 N       R         14       2         15       1         16       1         17       1         20 W 18 N       R         12       2         24 W 11 N       2         12       2         24 W 13 N       3	8	1 1	!	•		!	-	
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Chevron Standard Ltd.

-IN ACCOUNT WITH-

VANGEOCHEM LAB LTD. 1521 PEMBERTON AVE., NORTH VANCOUVER, B.C., CANADA V7P 2S3

For Project:

Analyst:

TELEPHONE: 986-5211 AREA CODE: 604

Specialising in Trace Elements Analyses

Certificate	of	Geochemical	Analyses

_							
Report No:	78	30	019 <b>//</b>	Page	2	of	2
Samples Arrived:							
Report Completed:							

Attention:

Sample Marking	Mo				
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24 W 18 N	- 1			···	
20 W 13 N 14	2				
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16 17	1				
28 W 18 N	1		···		
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MARKS:					/
				Signed:	Q
4o x 1.6683 = % MoS,	1 Trov oz./ton - 34.2	3.ppm 1.p	⊳თ - 0.00 <b>01</b> %	nd none deteried	ppm = parts per millio

All values are believed to be correct to the best knowledge of the analyst based on the mathod and instruments used.

3.

## PROGRAM COST STATEMENT

LABOUR COSTS

.

Employee	<u>Field</u> Dates		Man	days_	
		<u>Field</u>	<u>Office</u>	Travel	<u>Total</u>
D. Arscot W. Howell G. Todd	t 22 August 27 July 27-29 July &	1	3 1	1 1	5 3
J. Webber	27-29 July a 21,22,25,27 August 27-29 July	7	-	1	8
T. Oliver	21,22,25,27 August 29 July 27-29 July	7 1	-	Ţ	8 2
it norre	22 August	<u>5</u> 22	_ 4	<u>1</u> 6	<u>6</u> 32
Cost per n Total Labo <u>OTHER COS</u> T	man day, average, is \$6 our Cost I <u>S</u>	7.37			\$2,156.00
Analyses Truck tran Food 28 m. Camp and 1 Drafting 3 Miscellane	230 samples @2.60 hsportation 9 days @30. d. @9.00 field supplies 28 m.d. @ 8 days @65. eous: Copying, telephone	10. e, etc.	\$ 598. 270. 252. 280. 195. 50. \$1,645.		1,645.00
	TOTAL PROGRAM COS	Т			\$3,801.00

Marid Amatt

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## REFERENCES

## Government Reports

- 1970 Hope Map Area, G.S.C. Paper 69-47
- 1972 Geology, Exploration and Mining in B.C., p. 102-114
- 1973 Geology, Exploration and Mining in B.C., p. 125-128

## Property Assessment Reports

- 1972 Report #5597 Rio Tinto Canadian Exploration Ltd.
- 1971 Report #3440 Cominco Ltd.
- 1976 Report # ? Amax Potash Ltd.
- 1977 Report # ? Chevron Standard Limited

## CERTIFICATE

I, David Philip Arscott, am a Professional Engineer, registered in British Columbia with office address at 901 - 355 Burrard Street, Vancouver, B. C. V6C 268.

I have 13 years' experience in various phases of mineral exploration, of which approximately 10 years have been spent in B.C. and the Canadian Cordillera.

The 1978 geochemical survey on the I AM claims was carried out under my direction by personnel employed by Chevron Standard Limited.

Marid Areatt

DAVID ARSCOTT, P. Eng. 27 September, 1978



						64₩					
36N-						•49					
						•69					
					I	•24 •4!	•4l				
32N						.40	•16				
						•13	•9				
						•12. •7	•18 •16				
28N						•38	•40				
						• 7	•67				
						•17 •21	•48				
24N						-48	•39				
						•20	•29				
						•58 •14	•40				
20N						•36	•70				
						• th	•66				
						•8	- 80_				
16N						•10	.30				
						•i4	• 17				
						•	• 4 9				
12N						•	•36				
						•	• 33				
						•	• 8				
R.N.	-					•2 •15	• 24				
NIG.						•15	• 67				
						•34	• 45				
4 N						•46 •24	•28				
-414						•25	• 19				
						•25	•24				
01.00		100W _22	_48	92W _39	- 71	-73	• 31	76W		68W	
0+00	·	• 29	• •14	•40	• 26	•	•	•	•	•	
		• 70	•43	• 37	• 24	•	•				•
		•50	•9	•12	•65	•	•	•	•	•	•
45		•40 •66	•25	•47	001+		• 75	•		•	•
		• 11	• 46	C223	•240	•			•		•
		• 47	•27			•69 _		N	•	•	•
85		•50	•63 •39	• 190		•66	·530	ノ):	•	•	•
		118	.220	.35	•	•230	.190	· ·	•	•	•
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. 165						•47	•138 199	)	)•	•	
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205						•51 •40	(		•		
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24S 28S						•50 •65 •82 •29	•120 •120 •17 •25 •48 •39				
245 285						•50 •65 •82 •29	•120 •120 •17 •25 •48 •39 •57				
24S 28S <b>32</b> S						•50 •65 •82 •29	•120 •120 •17 •25 •48 •39 •57 •22				
24S 28S <b>32</b> S						•50 •65 •82 •29	•120 •240 •17 •25 •48 •39 •57 •22 •44 •64				
24S 28S <b>32</b> S						•50 •65 •82 •29	•120 •240 •17 •25 •48 •39 •57 •22 •44 •64 •64 •44				
24S 28S 32S 36S						•50 •65 •82 •29	•120 •240 •17 •25 •48 •39 •57 •22 •44 •64 •44				

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FIG 2b CHEVRON MINERALS I AM CLAIMS PROJECT M480

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ang 1978.

		84W •2								
36N		•3 •3 •2 •10 •1 •								7
32N· -		•2 •1 •1 •1 •1 •1								
28N ····		•1 •1 •4 •3 •1 •3 •1 •4								
24N · · ·		•1 -2 •1 -2 •1 -2 •2 •2								
20N		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$						28W	20W	
6N		•5 •3 •3 •3 •4 •2 • •3						•1 •1 •1 •3 •1 •1 •1 •1 •2 •1 •2 •2	•   • l • 2	12V 1 11 1 22
I2N <sup></sup> .		• •] • •4 • •4				4 4 W	36	•1 •3 •2 •2 •1 •2 •1	•  •  •  •  •  •	2 •1 1 •1 •1 •2 •1
8N · · ·		•1 •4 •7 •3 •4 •4 •5				• • •	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	• • •	2 ) 
4 <b>N</b> -		•4 •5 •2 •4 •3 •3 •1 •3				• • •	• • • • • •		• •	- - -3
۱۵۵ ع ب	W 92W 	•4 •3 •2 •6 • •2 •1 • •1 <u>(6</u>	76₩ € • ·····• • • •	58W 60W	•	52W •	• • •			J ,
4 S	•1 •7 •2 •1 •2 •1 •2 •3 •5 •4 •2	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	· · ·	· · · ·	•	· · · ·	• •		•	•
8S · ·	2 •4 •2 2 •2 •2 3 •2 •3 4 •3 •3	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$				· · · ·		· · · ·	• • • •	•
12S	•4	•3 •6 •5 •4 •5 •4 •5 •4 •4	· · · · · ·			- · ·				
16S ·		+3 +2 +2 +2 +2 +5 		· · · ·		• •		LEGEND		
205		•2 •5 •4 •5 •2 •3 •3 •4	•			• •		5 ppm contour		
245		•3 •2 •5 •4 •4 •6 •5						NOTE All control by tape and compass	MINUPAL RESOURCES DE Additisment read	arrea 14
28S		•2 •4 •4 •4 •4						only represent 1977 data	691	<b>₩</b>
32\$		•3 •1 •4 •3							David	Mo GE
36S		•3								-00 

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FIG 20 CHEVRON MINERALS EOCHEMISTRY AM CLAIMS PROJECT M480 1: 4800 200 

Aug, 1978



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