1971 Geochemical and Geophysical Report for

Frontier Explorations Ltd.

and David Minerals Ltd. (N.P.L.)

3512

TITLE		Hans Haveroen Copper Property
AUTHORS		G.M. DePaoli, R.L. Morton and C.J. Hodgson, P.Eng. (B.C.)
DATE		January 1972
COMMODITY		Cu
LOCATION -	Area	Aspen Grove
	Mining Division	Nicola
	Coordinates	Latitude 49°55' Longitude 120°35'
	NTS	92 H 15
CLASS		Prospect Physical Work

AMAX Vancouver Office

TABLE OF CONTENTS

APPENDICES

FIGURES

SUMMARY

The Hans Haveroen Property is situated six miles northeast of Aspen Grove in the so-called Princeton-Aspen Grove Copper Belt, which consists of a northtrending series of economic and sub-economic copper deposits. The property has ready access by road and is situated in the relatively arid interior plateau of British Columbia. The property consists of 56 claims currently held by Frontier Explorations Limited.

Chalcopyrite, bornite, and chalcocite, locally of ore grade occur in volcanic rocks over an area 11,000 by 4,000 feet. These copper-rich rocks underlie two prominent copper soil anomalies both 3000 by 2000 feet; several elongate magnetic anomalies are present, two of which are coincident with the soil anomalies.

INTRODUCTION

This report summarizes the work done on the Hans Haveroen property between June 1 and June 25, 1971. Geochemical and geophysical surveys along with line cutting were carried out by a crew of four men under the supervision of G.M. DePaoli, geophysicist employed by Amax Exploration, Inc.

The prospect, discovered in 1899 (Big Sioux Group) is currently held, with right to purchase, by Frontier Explorations Ltd. Their Vancouver address is 711-475 Howe Street, Vancouver 5, B.C.

Physical Features

The claim group is situated in the relatively arid interior belt of British Columbia and consists of rolling grassland and open forest, used primarily for cattle ranching. Annual precipitation, mostly in the form of snow during the winter months, is approximately twenty inches; summers are typically hot and dry.

Outcrop is generally good and overburden ranges from a few to several tens of feet thick.

The Ingerbelle Mine hydrotransmission line, which is currently being constructed, passes through the northwest part of the property. The nearest long term water supply is Alleyne Lake some seven miles southwest of the property.

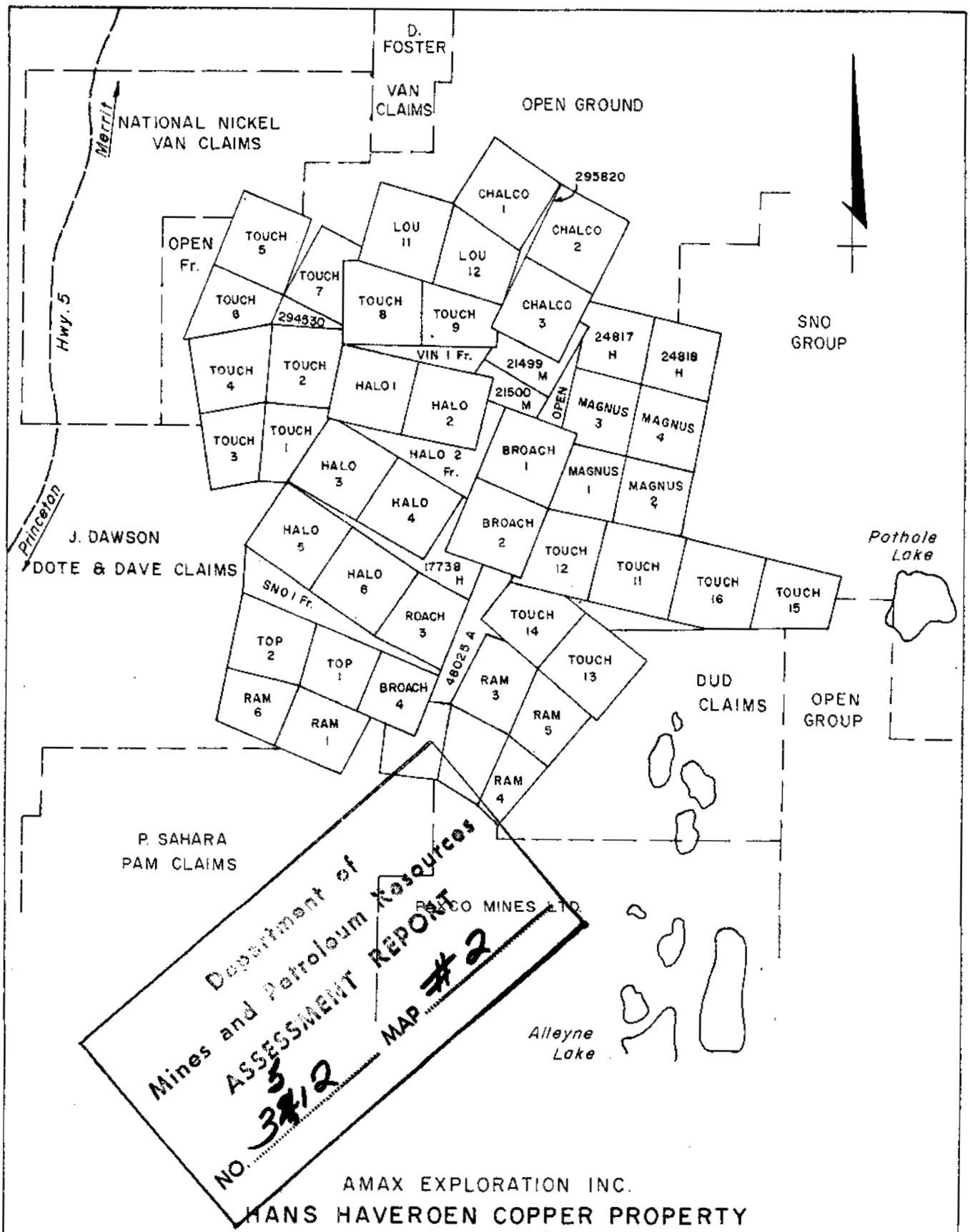
Location and Access

The property is situated six miles northeast of Aspen Grove (Figure 1), and is easily reached from the Merritt Highway (nine miles north of Aspen Grove) by a two-wheel drive road that passes through the claim group.

Claims

The Hans Haveroen property consists of the following claims (See Figure 2).

Claims		Record Number	Expiry Date
Halo #1 Group			
Halo #2,4		1364H, 1366H	July 28, 1972
Halo #2 Fr.		21067H	July 12, 1972
Broatch #1-2		21670P-21671P	Nov. 21, 1972
Magnus #1-6	inclusive	24813H-24818H	July 20, 1972
Touch #11-16	inclusive	29456D-29461D	Apr. 12, 1972
Lou #13-14		21499M-21500M	Sept.27, 1972
Halo #2 Group			
Halo #1,5,6		1363H,1367H,1368H	July 28, 1972
Halo #3		1365H	July 28, 1973
Halo Fr.		37738	Sept.26, 1972
Ram #1-6	inclusive	24820H-24825H	July 20, 1972
Ram #A-1		24819H	July 20, 1972
Broatch #3-4		1469M-1470M	Sept.22, 1972
Top #1-2		20910G-20911G	June 10, 1972
Touch #1-10	inclusive	29446D-29455D	Apr. 12, 1972
Lou #11-12		21497M-21498M	Sept.22, 1972
Chalco #1-3	inclusive	1475M-1477M	Sept.22, 1972
Sno #1-2 Fr.		48024-48025	Jan. 26, 1972
Vin #1 Fr.		49587	June 18, 1972
Ex #1-2		50905 50907	Nov. 18, 1972
Ex #1 Fr.		50906	Nov. 18, 1972



AMAX EXPLORATION INC.

HANS HAVEROEN COPPER PROPERTY

NICOLA MINING DIVISION —— BRITISH COLUMBIA

CLAIM MAP — FRONTIER MINERALS

Scale : 1 inch = 0·5 miles

To accompany "REPORT ON THE HANS HAVEROEN COPPER PROPERTY"
By: C.J. Hodgson, P.Eng. : R.L. Morton & A.A. Brickell

NTS File : 92 H 15
Fig. 2

REGIONAL GEOLOGY

The property lies in the so-called Princeton-Aspen Grove Copper Belt. The belt is underlain by Upper Triassic Nicola volcanic rocks comprising flows, pyroclastics, volcanic sediments, and minor limestone that have been intruded by related alkalic stocks. Nicola rocks are bounded on the east by the Jurassic Okanagan-Penask Batholith, and on the west by foliated rocks of the Eagle batholith.

GEOCHEMISTRY

A geochemical survey was carried out over the Haveroen grid with soil samples collected on 400 foot centers. A total of 220 samples were collected, with analytical results described in Appendix I and sample localities shown in Figure 4. All samples were analyzed for copper, molybdenum, nickel, manganese, iron, silver, zinc, and lead at AMAX's laboratory in Burnaby.

The soils consist of freely drained brown and grey wooded and grassland earths with a slightly acidic pH that averages 6.6. Copper values in the subsoils cover a wide range, varying from 16 to 960 ppm Cu, with an average value of 92 ppm Cu. The distribution of copper in soil samples collected over the property is shown below:

Background	-	0- 80 ppm Cu
Positive		81-100 ppm Cu
Moderately Anomalous	-	101-200 ppm Cu
Anomalous		>200 ppm Cu

Considering the distribution of copper the most striking features are two zones of anomalous values each covering an area 3000 by 1400 to 2000 feet. Nearly all samples within these two zones contain over 200 ppm Cu. It is possible that some glacial smearing has occurred to the south, but both of the anomalous zones correspond to areas of known copper sulphides, and the western most zone has a coincident magnetometer anomaly.

GEOPHYSICS-MAGNETOMETER SURVEY

Introduction and Theory

The magnetism of all rocks is controlled by their content of ferromagnetic material; i.e. substances possessing a relatively high susceptibility and capable of acquiring permanent magnetization.

Often intrusions are accompanied by widespread hydrothermal alteration zones in which ferromagnetic minerals may be redistributed to a periphery of the alteration. Thus a magnetometer survey may also aid in outlining zones of alteration and related mineralization.

A magnetometer survey was carried out over a grid measuring $1\frac{1}{2}$ square miles and was undertaken in an attempt to aid in the geological interpretation of the property.

Instrument and Procedure

The instrument employed was the Model MF-2 magnetometer manufactured by Sharpe Instruments, a division of Scintrex Ltd., Downsview, Ontario. It operates on the fluxgate principle measuring the vertical component of the earth's magnetic field.

The MF-2 circuitry is temperature compensated to less than 1 gamma per °C from -40°C to +40°C.

The MF-2 measurement range is from +100,000 gammas to -100,000 gammas and, on the most sensitive scale, the sensitivity is 20 gammas per scale division or a readability of 10 gammas.

The MF-2 is a hand held instrument requiring only coarse levelling.

The MF-2 latitude adjustment was employed to establish a background of approximately 100 gammas so that the majority of the readings would be observed on the most sensitive 1000 gamma scale.

The north-south base line was surveyed at 100 foot station intervals. Using the corrected values of the baseline stations as references, 100 foot station intervals were read on the cross lines.

The operator, in doing the cross lines, would begin at the base line, proceed easterly or westerly to the end of the line, cross over to the adjacent line, return to the base line and loop back to his starting point. This enabled him to apply reference and diurnal corrections to his readings.

The corrected values were annotated and contoured at 200 gamma intervals. The final map at a scale of 1" = 400' is presented in Figure 5.

Results and Discussions

Interpretation of the data indicates major north-south and north-west trending structures, believed to be faults related to the Summers Creek lineament. A series of small circular to elongate magnetic highs (Figure 5) lie along an inferred north-east structure, and are believed to be caused by magnetite that has replaced the matrix of tuff breccia, intrusive breccia, and lithic tuff.

A prominent magnetic high (2000 by 200-900 feet) is situated in the northwestern part of the property (Figure 5), and lies on the eastern edge of a sill-like body of microdiorite. The magnetic high is underlain by tuff breccia that contains veinlets and disseminated grains of chalcopyrite and minor bornite. A series of smaller (400 - 1200 by 200 - 600 feet) elongate magnetic highs occur over and on the flanks of the microdiorite-syenodiorite stock. Generally sulphides are ubiquitous across the property, but appear to be most abundant over and on the flanks of the magnetic highs.

G.M. DePaoli R.L. Morton C.J. Hodgson, P.Eng. (B.C.)

AMAX Vancouver Office

January 1972

APPENDIX II - ANALYTICAL VALUES

and

PROCEDURES FOR COLLECTION AND PROCESSING OF GEOCHEMICAL SAMPLES

Period of Work June 1 - June 25, 1971

Summary of Work

Geochemical Sampling	-	3 square miles
Geochemical Analyses	-	220 samples
Line Cutting	-	3 line miles
Ground Magnetometer Survey	-	20 line miles

Personnel Employed

D. G. Colley - 4359 Harder Road, Victoria, B.C.	
Junior Assistant; 25 days @ $19.66/day	$491.50
G. M. DePaoli - 5442 Inman Avenue, Burnaby, B.C.	
Geophysicist; 14 days @ $50.00/day	700.00
M. L. Legros - 16 Lake Street, Huntingdon, Quebec.	
Junior Assistant; 6 days @ $16.24/day	97.44
T. R. Underwood - Box 150, Montrose, B.C.	
Junior Assistant; 3 days @ $20.52/day	61.56
Board 40 days @ $6.00/day	240.00
Transportation 1 four-wheel drive vehicle	
25 days @ $5.00/day	125.00
Geochemical Analyses	
220 samples for Mo, Cu, Ni, Mn, Fe, Ag, Zn, and Pb @ $3.00/sample	660.00
Magnetometer Rental	
14 days @ $10.67/day	149.38
Drafting	100.00
	$2,624.88

Work is to be applied for one year on Sno #1 and #2 fractionals, Touch #1-16 inclusive, Top #1 and #2, Vin #1 fractional, Halo #2 fractional, and Ram #A-1.

Declared before me at the VANCOUVER, B.C.,

this JAN 25 1972 the

Province of British Columbia, this

day of , A.D.

Sub - Mining Recorder

R. L. Martin

C. F. Holgate

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

Mo, Cu, Ni, Mn, Ag, Zn and Pb are in terms of ppm.
Fe concentrations are in %.

Samplers - D.G. Colley and M.L. Legros

Sample #	pH	Mo	Cu	Ni	Mn	Fe	Ag	Zn	Pb
MAS 519		1	72	20	1000	2.2	.5	112	16
520	6.6	1	88	32	1520	2.9	.5	172	20
521		1	52	28	1080	2.1	.5	108	16
522		1	36	16	520	1.7	.5	58	20
523		1	56	20	2200	2.5	.5	188	18
524	6.9	1	60	24	560	3.1	.5	68	12
525		4	80	24	800	2.7	.5	136	16
526		1	44	20	1160	2.6	.5	116	16
527		1	96	28	1040	3.0	.5	96	18
528	6.6	1	84	36	960	3.4	.5	98	16
529		1	88	20	1520	2.2	.5	164	14
530		1	32	16	440	1.8	.5	40	20
531		1	20	12	440	1.4	.5	72	12
532	6.3	1	60	20	960	2.5	.5	86	16
533		1	56	20	760	1.9	.5	108	12
534		1	64	20	440	2.2	.5	108	16
535		2	56	20	1200	3.2	.5	112	20
536	6.5	1	24	12	1640	1.4	.5	230	12
537		1	24	8	640	1.6	.5	84	10
538		1	52	20	360	3.5	.5	66	12
539		1	24	12	600	1.5	.5	164	6
540	6.5	1	60	24	1280	2.8	.5	144	12
541		1	48	20	720	2.6	.5	64	12
542		1	36	16	760	2.6	.5	102	12
543		1	56	20	1000	2.4	.5	120	12
544	6.0	1	52	20	1080	3.0	.5	92	16
545		1	52	16	1200	2.6	.5	120	14
546		2	76	18	1080	3.0	.5	120	20
547		1	76	20	1000	2.9	.5	118	20
548	6.5	1	52	16	1200	2.0	.5	116	12
558	6.4	1	64	20	1120	2.4	.5	144	16
559		1	84	20	1080	3.4	.5	116	16
560		1	68	12	700	1.6	.5	80	12
561		1	44	16	1040	1.8	.5	100	12
562	6.4	1	20	8	300	1.3	.5	60	8
563		1	58	24	1040	3.3	.5	92	16
564		1	24	28	1240	2.4	.5	100	12
565		1	680	24	1120	3.8	.5	72	12
MQS1051		2	168	36	640	4.4	1.0	86	20
1052		2	34	24	640	2.7	.5	74	12
1053	6.6	1	112	32	920	3.8	1.0	102	16

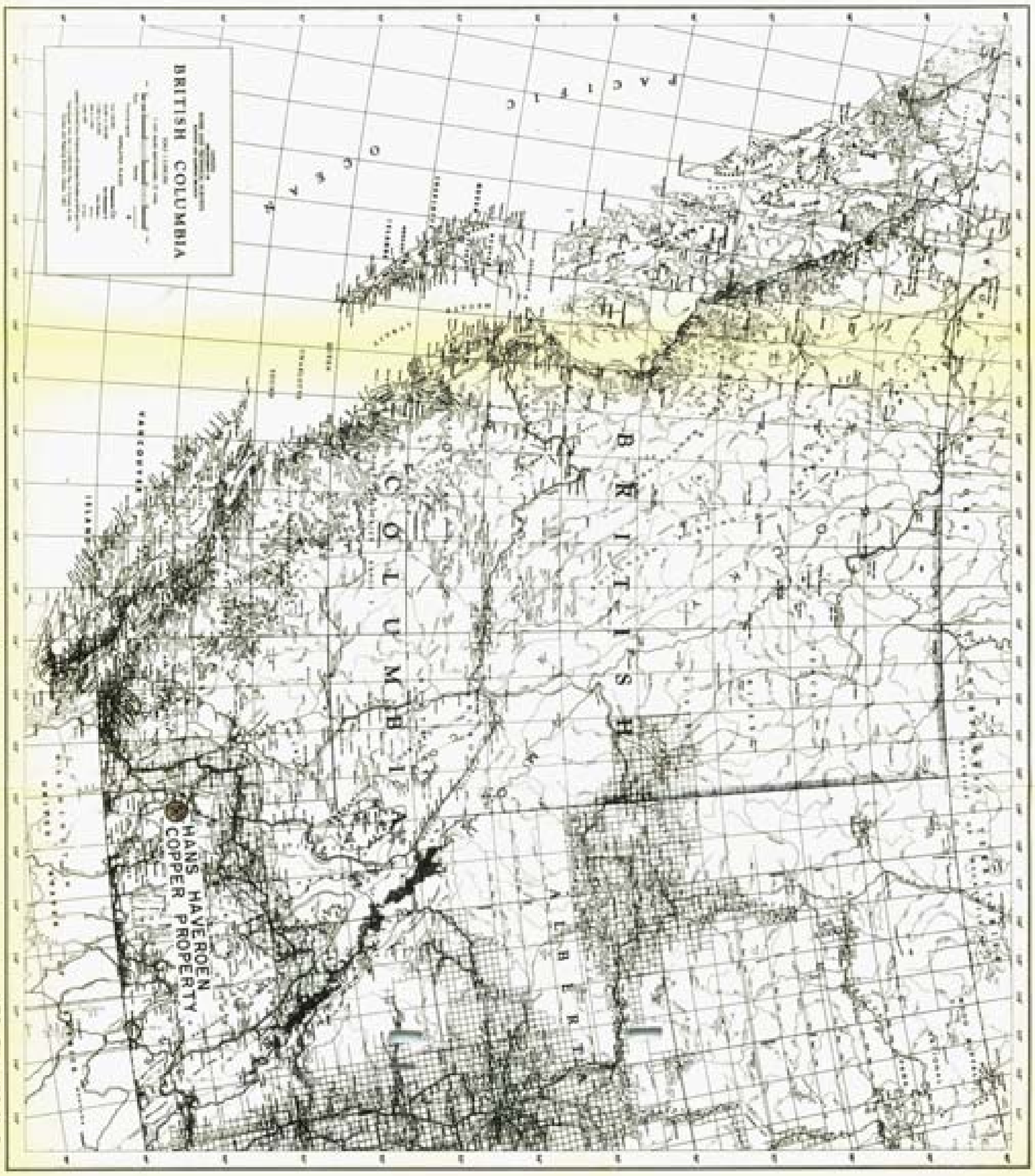
Sample #	pH	Mo	Cu	Ni	Mn	Fe	Ag	Zn	Pb
MQS1054		1	44	20	600	2.7	.5	64	14
1055		1	44	24	1040	2.9	.5	140	12
1056		1	36	20	460	2.5	.5	74	12
1057	6.3	1	40	20	520	2.5	.5	100	12
1058		1	52	20	440	3.0	.5	104	16
1059		1	52	24	560	3.2	.5	68	14
1060		1	140	28	2120	4.2	1.0	168	28
1061	6.6	2	224	24	1240	3.2	1.0	156	16
1062		1	98	24	960	3.2	.5	96	16
1063		2	116	20	840	2.7	1.0	96	12
1064		2	100	24	800	3.0	1.0	80	12
1065	6.5	1	76	24	800	2.9	.5	68	12
1066		1	72	24	800	3.0	.5	100	14
1067		1	80	24	760	3.1	.5	72	14
1068		1	132	28	960	3.5	.5	80	16
1069	6.5	2	76	24	920	3.5	.5	120	20
1070		2	64	24	640	2.7	.5	80	12
1071		1	96	28	920	3.6	.5	96	16
1072		1	84	24	1000	3.0	.5	104	12
1073	6.7	1	168	20	640	2.6	.5	56	12
1074		1	520	20	960	2.9	.5	76	12
1075		1	100	24	760	3.1	.5	88	16
1076		1	268	28	800	3.1	.5	92	12
1077	6.7	1	460	24	760	3.4	.5	104	16
1078		1	100	16	1040	2.0	.5	84	12
1079		1	264	28	840	3.1	.5	84	12
1080		1	176	24	880	2.6	.5	108	12
1081	6.6	1	124	30	800	3.2	.5	96	14
1082		1	84	28	760	2.7	.5	80	12
1083		1	132	24	1160	2.3	.5	112	12
1084		1	64	20	640	2.1	.5	58	8
1085	6.2	1	440	24	800	2.5	.5	96	12
1086		1	292	18	940	2.0	1.5	92	12
1987		1	100	20	1000	2.5	.5	96	12
1088		1	80	32	640	2.6	.5	68	12
1089	7.0	1	124	24	400	2.4	.5	60	12
1090		1	200	26	720	2.6	1.0	88	12
1091		1	300	22	800	2.3	.5	68	12
1092		1	168	24	920	2.7	.5	96	12
1093	6.9	1	96	24	720	2.4	.5	72	12
1094	6.3	2	500	24	1040	4.7	.5	92	16
1095		2	96	36	1120	4.0	.5	140	16
1096		2	156	24	1160	3.6	.5	64	16
1097		2	56	24	600	3.2	.5	92	16
1098	6.1	1	144	24	640	3.4	.5	80	16
1099		8	148	16	280	0.2	.5	28	24
1100		1	144	28	840	3.6	.5	104	16
1101		1	264	28	1320	3.1	.5	148	20

Sample #	pH	Mo	Cu	Ni	Mn	Fe	Ag	Zn	Pb
MQS1102	6.4	1	120	20	1080	3.1	.5	108	16
1103		1	116	20	580	3.2	.5	100	12
1104		1	128	36	580	3.5	.5	80	16
1105		1	500	28	840	3.2	.5	124	12
1106	6.0	1	280	16	1340	2.7	1.0	188	36
1107		1	96	20	1180	2.5	.5	128	12
1108		1	232	18	1690	3.1	.5	112	16
1109		1	196	20	1080	3.1	1.0	88	12
1110	6.3	1	120	24	1140	3.6	.5	124	16
1111		1	500	16	980	2.4	.5	80	14
1112		1	296	20	1200	4.0	.5	88	20
1113		1	388	32	1480	5.0	.5	112	20
1114	6.7	1	28	28	720	3.0	.5	80	8
1115		1	36	16	880	2.3	.5	96	12
1116		1	44	16	840	3.1	.5	96	16
1117		1	32	12	640	1.7	.5	112	12
1118	6.6	1	40	16	1000	2.2	.5	140	12
1119		1	84	20	1040	3.5	.5	112	16
1120		1	52	16	1000	2.7	.5	112	18
1121		1	52	16	1000	2.8	.5	116	16
1122	6.5	1	112	24	760	4.0	1.0	98	20
1123		1	32	16	520	3.2	.5	76	20
1124		1	36	16	880	2.3	.5	100	14
1125		1	132	16	1000	2.5	.5	116	16
1126	6.3	1	88	16	1080	2.6	.5	224	16
1127		1	248	16	980	2.8	.5	112	16
1128		1	116	12	2000	2.3	.5	152	12
1129		1	880	36	840	3.9	.5	84	16
1130	6.4	1	308	12	880	2.4	.5	88	8
1131		1	136	16	1280	2.4	.5	200	12
1132		1	76	16	1120	2.4	.5	160	8
1133		1	168	20	920	2.5	.5	116	8
1134	5.9	1	88	16	540	2.0	.5	82	10
1135		1	84	24	560	2.7	.5	68	10
1136		1	68	20	480	2.4	.5	68	12
1137		4	300	24	1880	3.2	1.0	140	16
1138	6.6	2	960	36	920	4.3	1.0	110	16
1139		2	160	28	1040	3.2	1.0	120	16
1140		2	168	20	840	2.7	.5	128	12
1141		2	332	20	980	2.8	.5	116	12
1142	6.4	2	104	28	1160	3.5	.5	112	14
MCS495		1	40	16	600	2.3	.5	84	10
496		1	112	28	720	2.9	.5	96	12
497		1	216	28	1320	3.1	.5	112	16
498	6.7	1	28	20	300	2.3	.5	52	10
499		1	50	24	500	2.7	.5	76	12
500		1	40	20	320	2.7	.5	64	12

Sample #	pH	Mo	Cu	Ni	Mn	Fe	Ag	Zn	Pb
MCS501		1	78	24	920	3.2	.5	116	12
613		1	56	24	960	3.2	.5	84	12
614		1	132	20	1040	2.7	.5	100	12
615		1	150	16	760	2.8	.5	60	12
616	6.8	1	120	24	1720	2.9	.5	116	12
617		1	84	18	340	2.3	.5	108	8
618		1	196	18	1060	3.0	.5	80	12
619		1	92	24	1240	2.0	.5	114	8
620	7.0	1	246	28	760	3.4	.5	76	12
621		1	408	32	1220	4.0	1.5	140	12
622		1	58	16	420	2.4	.5	100	10
623		1	60	20	580	2.3	.5	84	8
624		1	38	20	1080	2.3	.5	92	8
625	6.7	1	50	28	520	3.2	.5	92	12
626		1	24	16	500	2.2	.5	60	8
627		2	152	18	660	2.8	.5	80	12
628		1	140	20	560	3.2	.5	64	12
629	6.8	1	68	18	1240	3.3	.5	80	16
630		1	156	20	1840	2.8	.5	164	16
631		1	120	16	680	3.0	.5	112	14
632		1	108	18	1300	2.7	.5	124	20
633	6.9	1	90	18	1420	2.9	.5	152	16
634		1	56	16	820	2.7	.5	188	16
635		2	232	20	1040	3.3	.5	208	24
636		1	390	20	1560	4.0	1.0	212	26
637	7.1	1	148	16	520	2.8	.5	156	18
638		1	144	18	1220	3.1	.5	100	12
639		1	186	24	940	4.0	.5	64	16
640		1	112	18	460	3.4	.5	52	12
641	7.3	1	148	26	620	3.7	.5	80	12
642		1	84	26	860	3.5	.5	64	14
643		1	86	18	720	2.7	.5	84	12
644	7.0	1	136	28	1120	3.5	.5	100	12
645		1	262	22	840	3.3	.5	84	12
646		1	34	20	360	2.7	.5	84	12
647		1	64	24	740	2.8	.5	96	12
648	6.6	1	96	30	1000	3.5	.5	96	16
649		1	56	22	440	2.7	.5	72	12
650	6.4	1	52	20	840	2.9	.5	158	20
651		1	84	48	1280	3.8	.5	124	18
652		1	28	20	520	3.0	.5	80	16
653		1	60	28	820	3.6	.5	90	20
654	6.7	1	64	24	1320	2.9	.5	152	24
655		1	48	20	980	2.9	.5	128	16
656		1	92	28	960	3.3	.5	80	18
657		1	92	26	480	3.6	.5	102	18
658		2	68	24	1220	2.8	.5	122	16
659	7.0	1	132	50	800	4.3	1.0	78	22

Sample #	pH	Mo	Cu	Ni	Mn	Fe	Ag	Zn	Pb
MCS660		1	72	34	1040	4.0	.5	98	22
661		1	56	32	800	3.5	.5	88	22
662		1	128	44	740	4.7	1.0	76	26
663	6.0	1	88	26	1120	2.9	1.0	124	16
664		1	172	34	1140	3.8	.5	92	18
665		1	100	24	1060	2.9	.5	84	16
666		1	76	26	680	3.5	.5	100	16
667	6.6	1	96	25	740	3.1	.5	70	16
668		1	92	26	950	3.3	.5	82	17
669		1	48	20	840	2.9	.5	62	18
670		1	42	18	730	2.8	.5	58	15
671	6.4	1	80	24	820	3.0	1.0	62	34
672		1	28	18	800	2.8	.5	72	15
673		1	56	21	580	3.2	.5	96	16
674		1	116	22	800	3.0	.5	86	15
675	6.3	1	56	24	1160	2.8	.5	146	15
676		1	80	28	1110	3.6	.5	114	18
677		1	52	28	680	3.5	.5	70	16
862	6.5	1	38	20	520	3.8	.5	84	20
863		1	48	20	1080	3.2	.5	124	18
864		1	36	16	1380	3.0	.5	136	16
865		1	32	16	880	2.8	.5	108	12
866	6.6	1	172	20	1800	3.7	.5	152	16
867		1	124	24	780	3.7	.5	120	16
868		1	332	20	1360	3.6	.5	144	16
869		1	192	16	1120	3.3	.5	90	14
870	6.2	1	120	16	1320	2.1	.5	96	8
871		1	208	24	760	3.6	.5	252	16
872		1	216	28	1280	3.9	.5	268	16
873		1	76	24	920	3.2	.5	256	12
874	6.1	1	180	12	1440	2.6	.5	180	10
875		1	80	20	720	2.9	.5	88	8
876		1	64	20	600	2.7	.5	56	16
877		1	42	20	680	2.8	.5	88	10
878	6.2	1	60	20	800	2.8	.5	96	8
879		2	680	30	620	4.7	.5	88	16

APPENDIX I - STATEMENT OF COSTS



LOCATION MAP

NTS File 92 H (5)
Fig. 1

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

TO WIT:

In the Matter of expenditures incurred on the Hans Haveroen Cu Property, 6 miles NE of Aspen Grove between June 1-25, 1971

I, R.L. Morton

of 601-535 Thurlow St., Vancouver 5, B.C.

in the Province of British Columbia, do solemnly declare that

The following is a breakdown of the costs incurred on the Hans Haveroen Property between June 1 and June 25, 1971.

Summary of Work
Geochemical Sampling - 3 sq. miles
Geochemical Analyses - 220 samples - Mo,Cu,Ni,Mn,Fe,Ag,Zn & Pb
Linecutting - 3 line miles
Ground Magnetometer Survey - 20 line miles

Personnel Employed

D.G.Colley	-4359 Harder Rd.Victoria,B.C.-Jr.Assist- 25 days @ $19.66/day	= $ 491.50
G.M.DePaoli	-5442 Inman Ave.Burnaby,B.C.-Geophysicist-14 days @ $50.00/day	= 700.00
M.L.Legros	-16 Lake St.Huntingdon,P.Q. - Jr.Assist- 6 days @ $16.24/day	= 97.44
T.R.Underwood	-Box 150,Montrose, B.C. - Jr.Assist- 3 days @ $20.52/day	= 61.56
Board - 40 days @ $6.00/day		= 240.00
Transportation - 1 4-wheel drive vehicle - 25 days @ $5.00/day		= 125.00
Geochemical Analyses - 220 samples for Mo,Cu,Ni,Mn,Fe,Ag,Zn,Pb @ $3.00/sample		= 660.00
Magnetometer Rental - 14 days @ $10.67/day		= 149.38
Drafting		= 100.00
		$2624.88

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the
of VANCOUVER, B.C., in the
Province of British Columbia, JAN 25 1972
day of A.D.

R. L. Morton

Sub - Mining Recorder

A Commissioner for taking Affidavits for British Columbia or
A Notary Public in and for the Province of British Columbia.

In the Matter of

Statutory Declaration

(CANADA EVIDENCE ACT)

Procedures for Collection and Processing of Geochemical Samples

Analytical Methods for Ag, Mo, Cu, Pb, Zn, Fe, Mn, Ni, Co and W in sediments and soils; Mo, Cu, Zn, Ni and SO_4^{--} in waters.

Amax Exploration, Inc.
Vancouver Office.

September 1970

R.F. Horsnail

SAMPLE COLLECTION

Soils

B horizon material is sampled and thus organic rich topsoil and leached upper subsoil are avoided. Occasionally organic rich samples have to be taken in swampy depressions.

Samples are taken by hand from a small excavation made with a cast iron mattock. Approximately 200 gms of finer grained material is taken and placed in a numbered, high wet-strength, Kraft paper bag. The bags are closed by folding and do not have metal tabs.

Observations as to the nature of the sample and the environment of the sample site are made in the field.

Drainage Sediments

Active sediments are taken by hand from tributary drainages which are generally of five square miles catchment or less. Composite samples are taken of the finest material available from as near as possible to the centre of the drainage channel thus avoiding collapsed banks. More than one sample is taken if marked mineralogical or textural segregation of the sediments is evident.

Some 200 gm of finer material is collected unless the sediment is unusually coarse in which case the weight is increased to 1 kg. Samples are placed in the same type of Kraft paper bag as are employed in soil sampling. Water samples are taken at all appropriate sites. Approximately 100 mls are sampled and placed in a clean, screw sealed, polythene bottle. Observations are made at each site regarding the environment and nature of the sample.

Rock Chips

Composite rock chip samples generally consist of some ten small fragments broken from unweathered outcrop with a steel hammer. Each fragment weighs some 50 gms. Samples are placed in strong polythene bags and sealed with non-contaminating wire tabs. Samples are restricted to a single rock type and obvious mineralization is avoided.

Soil, sediment and rock samples are packed securely in cardboard boxes or canvas sacks and dispatched by road or air to the AMAX geochemical laboratory in Vancouver.

SAMPLE PREPARATION

Packages of samples are opened as soon as they arrive at the laboratory and the bags placed in numerical sequence in an electrically heated sample drier (maximum temperature 70°C).

After drying soil and sediment samples they are lightly pounded with a wooden block to break up aggregates of fine particles and are then passed through a 35 mesh stainless steel sieve. The coarse material is discarded and the minus 35 mesh fraction replaced in the original bag providing that this is undamaged and not excessively dirty.

Rock samples are exposed to the air until the outside surfaces are dry; only if abnormally wet are rocks placed in the sample drier. Rock samples are processed in such manner that a fully representative ½ g sample can be obtained for analysis. The entire amount of each sample is passed through a jaw crusher and thus reduced to fragments of 2 mm size or less. A minimum of 1 kg is then passed through a pulverized with plates set such that 95% of the product will pass through a 100 mesh

screen. Where samples are appreciably heavier than 2 kg the material is split after jaw crushing by means of a Jones splitter. After pulverizing the sample is mixed by rolling on paper and is then placed in a Kraft paper bag.

SAMPLE DIGESTION

Digestion tubes (100 x 16 mm) are marked at the 5 ml level with a diamond pencil. Tubes are cleaned with hot water and concentrated HCl. 0.5 g samples are weighed accurately, using a Fisher Dial-O-Gram balance, and placed in the appropriate tubes.

To each of the samples thus prepared are added 2 ml of an acid mixture comprising 15% nitric and 85% perchloric acids. Racks of tubes are then placed on an electrical hot plate, brought to a gentle boil ($\frac{1}{2}$ hour) and digested for $4\frac{1}{2}$ hours. Samples unusually rich in organic material are first burned in a porcelain crucible heated by a bunsen burner before the acid mixture is added. Digestion is performed in a stainless steel fume hood.

After digestion tubes are removed from the hot plate and the volume is brought up to 5 ml with deionized water. The tubes are shaken to mix the solution and then centrifuged for one minute. The resulting clear upper layer is used for Cu, Mo, Pb, Zn, Ag, Fe, Mn, Ni and Co determination by a Perkin-Elmer 290B atomic absorption spectrophotometer. Analytical procedures are given on the following pages.

ANALYTICAL PROCEDURES

Silver

1. Scope - This procedure covers a range of silver in the sample from less than .5 to 1000 ppm

2. Summary of Method - The sample is treated with nitric and perchloric acid mixture to oxidize organics and sulphides. The silver then is present as perchlorate in aqueous solution. The concentration is determined by atomic absorption spectrophotometer.

3. Interferences - Silver below 1 gamma/ml is not very stable in solution. Maintaining the solution in 20% perchloric prevents silver being absorbed on the glass container. Determination must be completed on the same day as the digestion.

   Samples high in dissolved solids, especially calcium, cause high background absorbance. This background absorbance must be corrected using an adjacent Ag line.

Silver AA Settings P.E. 290

Lamp - Ag

Current 4 ma position 3

Slit 7 A

Wavelength 3281A Dial 287.4

Fuel - acetylene - flow - 14

Oxidant - air - flow - 14

Burner - techtron AB 51 in line

Maximum Conc. 3 to 4x

Calibration

1. Set 1 gamma/ml to read 40 equivalent to 20 gamma/gm

   Factor $\frac{1}{2}$ x meter reading

   Check standards

   4, 10, 20, 40 ppm Ag in sample

2. Set 15 gamma/ml to 100 equivalent to 100 ppm

   Check standards

   40, 100 ppm

   Factor directly in ppm Ag

3. Rotate burner to maximum angle

   Set 10.0 gamma/ml Ag to read 100

   Check standards

   100, 200, 400, 1000 ppm Ag

   Factor 10x scale reading

4. Samples higher than 1000 ppm should be re-analyzed by assay procedure

5. Background correction for sample reading between 1 to 5 ppm

   Calibrate AA in step 1

   Dial wavelength to 300 (peak)

   Read the samples again

   Subtract the background reading from the first reading

Standards

1. 1000 gamma/ml Ag - 0.720 gm Ag_2SO_4 dissolved in 20 mls $Hxlo_3$ and dilute to 500 mls

2. 100 gamma/ml Ag - 10 mls of above + 20 mls $HClO_4$, dilute to 100 mls

3. Recovery spiked standard

5 gamma/ml Ag - 5 mls 100 gamma/ml dilute to 100 mls with "mixed" acid

Working AA Standards

Pipette .2, .5, 1, 2, 5, 10 mls of 100 gamma/ml and 2, 5 mls 1.000 gamma/ml dilute to 100 mls with 20% $HClO_4$. This equivalent to 4, 10, 20, 40, 100, 200, 400, and 1000 ppm Ag in the sample .50 gm diluted to 10 mls.

Recovery Standard

Pipette 2 mls of 5 gamma/ml Ag in mix acids into a sample and carry through the digestion. This should give a reading of 20 ppm Ag + original sample content.

Follow the general geochemical procedure for sample preparation and digestion.

For low assay Ag, the same procedure is used. Ag is then calculated in oz/ton.

1 ppm = .0292 oz/ton

conversion factor

oz/ton = .0292 x ppm Ag

Zn Geochemical AA Setting

Lamp Zn

Current 8 #3 Slit 20A

Wave length 2138 Dial 84.9

Fuel - Acetylene Flow 14

Oxidant - Air Flow 14

Burner - P.E. short path 90°

Range

0 - 20 gamma/ml Factor 4x - 0 to 400 ppm

0 - 50 gamma/ml Factor 10x -0 to 1000 ppm

For Waters - Burner AB- 51 in line 1 gamma/ml read 100 to give 0 to 1000 ppb

High Zn Burner Boling in line. Wavelength 3075. Dial 250 Slit 7A

Fuel 14 Air 14.5

0 to 1000 gamma/ml read 0 to 20 Factor 400 x

Pure Standard 10,000 gamma/ml

1 gm Zn dissolved, H_2O, HCl, HNO_3, $HClO_4$, fumed to $HClO_4$ - make up to 100 mls H_2O

1000, 100 gamma/ml and 100 ml by dilution in 20 % $HClO_4$

0 to 200 gamma/ml Zn use combined Cu, Ni, Co, Pb, Zn standards

Pipette

1, 2, 3, 5, 8, 10 mls of 10,000 gamma/ml - dilute to 100 mls with 20% $HClO_4$ to give

100, 200, 300, 500, 800, 1000 gamma/ml Zn for high standards

Co Geochemical AA Setting

Lamp - 5 multi element

Current 10 #4 Slit 2A

Wavelength 2407 Dial 133.1

Fuel - Acetylene Flow 14

Oxidant - Air Flow 14

Burner - AB 51 in line

Range

0 - 10 gamma/ml read 100 Factor 2 x reading to 200 ppm

0 - 20 gamma ml read 100 Factor 4 x reading to 400 ppm

Burner at maximum angle

0 - 100 gamma/ml read 100 Factor 20 x reading to 2000 ppm

0 - 200 gamma/ml read 100 Factor 40 x reading to 4000 ppm

Standards - 1000 gamma/ml

1.000 gm cobalt metal dissolved in HCl, HNO, and fumed into $HClO_4$, dilute to 1 liter

Pipette

1, 2, 10, 20 mls into 100 ml vol flasks diluted to mark with 20% $HClO_4$

This gives

10, 20, 100, 200 gamma/ml Co

Mixed - combination standards of Cu, Ni, Co, Pb, Zn

of

1, 2, 5, 10, 20, 30, 50, 80, 100, 150, 200 gamma/ml are used for calibration

Mn Geochemical AA Setting

Lamp Multi element Ca, Ni, Co, Mn Cr

Current 10 #4 Slit 7A

Wave length 4030.8 Dial 425.2

Fuel - Acetylene Flow 14.0

Oxidant - Air Flow 14.0

Burner - P.E. short path (or AB 50)

Range

0 - 100 gamma/ml Factor 20x - 0 to 2000 ppm

0 - 200 gamma/ml Factor 40x - 0 to 4000 ppm

Burner 90°

0 - 1000 gamma/ml Factor 200x - 0 to 20,000 ppm

0 - 2000 gamma/ml Factor 400x - 0 to 40,000 ppm

EDTA Extraction - use AB 51 in line

0 - 20 gamma/ml Factor 4x - 0 to 400 ppm

Standards

Fisher 10,000 gamma/ml (ml)

10x Dilution 1000 gamma/ml

Pippette

.5, 1, 2, 3, 5, 8, 10, ml of 1000 gamma/ml

2, 3, 5, 8, 10, 15, 20 ml of 10,000 gamma/ml dilute to 100 mls with 20% $HClO_4$. This gives

5, 10, 20, 30, 50, 80, 100, 200, 300, 500, 800, 1000, 1500, 2000 gamma/ml

Mo Geochemical AA Setting

Lamp ASL H/C Mo

Current 5 #5 Slit 7A

Wavelength 3133 Dial 260.2

Fuel - Acetylene Flow 12.0 to give 1" red feather

Oxidant - Nitrous oxide Flow 14.0

Burner - AB 50 in line

Caution read the operation using N_2O and acetylene flame at end of general AA procedure

Range

0 - 10 gamma/ml Factor 2x - 0 to 200 ppm

Rotate burner to max. angle

0 - 50 gamma/ml Factor 10 x 0 to 1000 ppm

0 - 100 gamma/ml Factor 20 x 0 to 2000 ppm

Standards 1000 gamma/ml

Dissolve .750 gms MoO_3 (acid molybdic) with 20 mls H_2O, 6 lumps NaCH, when all dissolved, add 20 mls HCl, dilute to 500 mls

100 gamma/ml - 10 x dilution

Pipette

.2, .5, 1, 2, 3, 5, 8, 10 mls of 100 gamma/ml

2, 3, 5, 8, 10 mls of 1000 gamma/ml add 5 mls 10% $AlCl_3$ and dilute to 100 mls with 20% $HClO_4$

This gives

.2, .5, 1, 2, 3, 5, 8, 10, 20, 30, 50, 80, 100 gamma/ml Mo

Fe Geochemical AA Setting

Lamp - Fe

- Do not use multi element Fe

Current 10 #4 Slit 2A

Wavelength 3440.6 Dial 317.5

Fuel - Acetylene Flow 14.0

Oxidant - Air Flow 14.0

Burner - PE Short Path 90°

Range

0 - 5000 gamma/ml 0.1 x % - 0 to 10.0%

0 - 10,000 gamma/ml 0.2 x % - 0 to 20.0%

Higher Fe - 10 x dilution

Standards 10,000 gamma/ml

Weigh 5.000 gms iron wires, into beaker, add H_2O, HCl, HNO_3, $HClO_4$, heat to $HClO_4$ fumes. Add $HClO_4$ to 100 mls + 100 mls H_2O, warm, dilute to 500 mls

Pipette

1, 5, 10, 20, 30, 50, 80 mls 10,000 gamma/ml dilute to 100 mls with 20% $HClO_4$ to give

100, 500, 1000, 2000, 3000, 5000, 8000 gamma/ml to be equivalent to .2, 1.0, 2.0, 4.0, 6.0, 10.0%, 16.0% Fe in geochem sample

Ni Geochemical AA Setting

Lamp P.E. H/C. Ni or multi element Cu, Ni, Co, Mn, Cr

Current 10 #4, Slit 2A

Wave length 3415 Dial 312.5

Fule - Acetlylene Flow 14.0

Oxidant - Air Flow 14.0

Burner AB 51 in line

Range

0 - 20 gamma/ml Factor 4x - 0 - 400 ppm

0 - 100 gamma/ml Factor 20x - 0 - 2000 gamma

45° 0 - 200 gamma/ml Factor 40x - 0 - 4000 ppm

0 - 500 gamma/ml Factor 100x - 0 - 10,000 ppm

Ni in waters and very low ranges

Wave length 2320 Dial 118

Range 0 - 5 gamma/ml Factor 1x - 0 - 100 ppm

Standards 10,000 gamma/ml

1.000 gm pure Ni metal dissolved in HCl, HNO_3, $HClO_4$ to perchloric fumes, dilute to 100 ml H_2O

1000 gamma/ml and 100 gamma/ml Successive 10x dilutions in 20% HClO

1, 2, 5, 8, 10 mls of 100 gamma/ml

2, 5, 8, 10 mls 1000 gamma/ml

2, 5, 8, 10 mls 10,000 gamma/ml - dilute to 100 mls in 20% HClO4. This gives

1, 2, 5, 8, 10, 20, 50, 80, 100, 200, 500, 800, 1000 gamma/ml N

Combined Standards - Cu, Ni, Co, Pb, Zn is used as a working standard

Cu Geochemical AA Setting

Lamp Single Cu or

5 multi element

Current 10 for multi element #4 Slit 7A

4 for single #3 Slit 7A

Wavelength 3247 Dial 280

Burner Techtron AB 51 (For Cu in natural waters)

P.E. Short Path (For geochem)

Fuel Acetylene Flow 14

Oxidant Air Flow 14

Range

0 - 5 gamma/ml Factor 1x to 100 ppm (for low Cu)

0 - 20 gamma/ml Factor 4x to 400 ppm

Burner 90°

0 - 200 gamma/ml Factor 40x to 4000 ppm

Wavelength 2492 Dial 147

Burner in line

Range

0 - 1000 gamma/ml Factor 200x to 20,000 ppm

0 - 2000 gamma/ml Factor 400x to 40,000 ppm

Higher range than 40,000 ppm requires 10x dilution

Standards

10,000 gamma/ml

1.000 gm metal powder, H_2O, HCl, HNO_3 until dissolved, add $HClO_4$, fume dilute to 100 mls

1000 gamma/ml 10x dilution above in 20% $HClO_4$

2000 gamma/ml 20 mls 10,000 gamma/ml - dilute to 100 mls in 20% $HClO_4$

100 gamma/ml 10x dilution 1000 gamma/ml dilute to 100 mls in 20% $HClO_4$

200 gamma/ml 10x dilution 2000 gamma/ml dilute to 100 mls in 20% $HClO_4$

Pipette

1, 2, 3, 5, 8, 10 mls 100 gamma/ml - dilute to 100 mls with 20% $HClO_4$ to give 1, 2, 3, 5, 8, 10 gamma/ml

Combined standards Cu, Ni, Co, Pb, Zn

1, 2, 5, 10, 20, 30, 50, 80, 100, 150, 200 gamma/ml

Pb Geochemical AA Setting

Lamp ASL H/c Pb

Current 5 ma Slit 7A

Wave length 2833 Dial 208

Fuel - acetylene Flow 14

Oxidant - air Flow 14

Burner AB 51 in line

Range

0 - 20 gamma/ml to read 0 to 80. Factor 5x 0 to 500 ppm

0 - 200 gamma/ml to read 0 to 80. Factor 50x 0 to 5000 ppm

Standards - 10,000 gamma/ml

1.000 pure metal, dissolved in HNO_3, fumed to $HClO_4$ make up to 100 mls in 20% $HClO_4$

1000 gamma/ml and 100 gamma/ml Successive 10x dilutions in 20% $HClO_4$

Pipette

1, 2, 5, 8, 10 mls 100 gamma/ml

2, 5, 8, 10, 20 mls 1000 gamma/ml dilute to 100 mls in 20% $HClO_4$ this gives

1, 2, 5, 8, 10, 20, 50, 80, 100, 200 gamma/ml

Combined Standards Cu, Ni, Co, Pb, Zn, are used as working standards

W in Soils and Silts

Reagents and apparatus

Test tubes - pyrex disposable

Test tubes - screw cap

Bunsen Burner

Flux - 5 parts Na_2CO_3

4 parts NaCl

1 part KNO_3 pulverized to -80 mesh

7% $SnCl_2$ in 70% HCl

20% KSCN in H_2O

Extractant - 1 part tri-n-butyl phosphate

9 parts carbon tetrachloride

Standards

1000 gamma/ml W

.18 gms Na_2WO_4 $2H_2O$ dissolved in H_2O, make up to 100 mls

100 gamma/ml, 10 gamma/ml by dilution

Standardization

Pipette .5, 1, 2, 3, 5, 8, 10 ml of 10 gamma/ml

and 1.5, 2 mls of 100 gamma/ml - dilute to 10 mls

continue from step #4

Artificial colors - Nabob pure Lemon Extract, dilute with 1:1 ethanol and water to match. Tightly seal these for permanent standards

Procedure

1. Weigh 1.0 gram sample, add 2 gm flux, mix

Water Samples Run for AA

1. Cu - 2 gamma/ml reads 80 scale therefore 1 unit = 25 ppb

2. Zn - 1 gamma/ml reads full scale therefore 1 unit = 10 ppb

3. Ni - 2.5 gamma/ml reads 50 scale therefore 1 unit = 50 ppb

Burner: long slot techtron burner in line

2. Sinter in rotary for 2 to 3 minutes (Flux dull read for one minute)
3. Cool, add 10 mls H_2O, heat in sand bath to boiling, cool, let sit overnight
4. Stir, crush, and mix. Let settle
5. Take 2 ml aliquot into screw cap test tube
6. Add 7 mls $SnCl_2$, heat in hot water bath for 5 minutes (80°C)
7. Cool to less than 15°C
8. Add 1 ml 20% KSCN, mix (if lenmon yellow; compare color standard 10x)
9. Add $\frac{1}{2}$ ml extractant, cap, shake vigorously 1 minute
10. Compare color

Molybdenum in Water Samples

1. Transfer 50 mls to 125 separatory funnel
2. Add 5 ml .2% ferric chloride in conc HCl
3. Add 5 mls of mixed KSCN and $SnCl_2$
4. Add 1.2 mls isopropyl ether, shake for 1 minute, and allow phases to separate
5. Drain off water
6. Compare the color of extractant

Standardization

Pipette 0, .2, .5, 1, 2, 3, 4, 5, mls of 1 gamma/ml and 1, 1.5, 2, mls of 10 gamma/ml dilute to 50 mls with demineralized H_2O, and continue step #2.

This equivalent to

1, 4, 10, 20, 40, 60, 80, 100, 200, 300, 400 ppb Mo

Artificial color - Nabob orange extract dilute with 1:1 H_2O to methanol to match. Seal tightly

$SnCl_2$ - 15% in 15% HCl

300 gm $SnCl_2 \cdot 2H_2O$ + 300 mls HCl, until $SnCl_2$ dissolved dilute to 2 liters

KSCN - 5% in H_2O

Mixed $SnCl_2$ - KSCN

3 parts $SnCl_2$ to 2 parts KSCN

Sulphate in Natural Waters

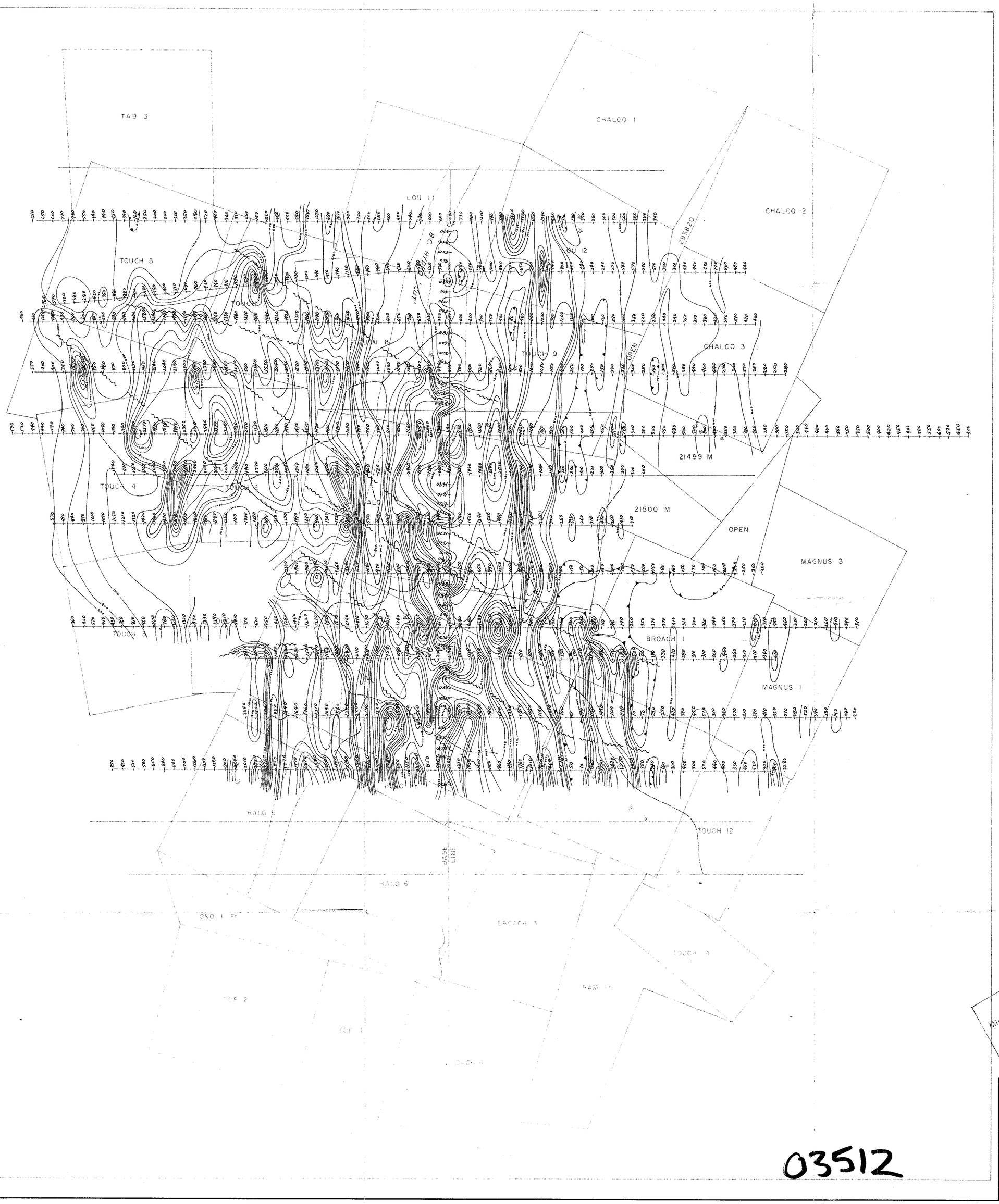
1. Pipette 0.5 ml sulphate reagent mix into a colorimetric tube
2. Add 5 ml water sample and mix
3. Read at 343 mμ against a demineralized water blank
4. Read again at 400mμ and subtract from sulphate reading
5. Calculate ppm sulphate from the graph

Reagent

Dissolve 54 grams red mercuric oxide (J.T. Baker 2620- Can Lab) in 185 ml 70% perchloric acid and 20 ml H_2O, shake for one hour. Add 46.3 grams ferric perchlorate [$Fe(ClO_4)_3 \cdot 6H_2O$] (GFS 39) and 47 grams aluminum perchlorate [$Al(ClO_4)_3 \cdot 8H_2O$] (GFS 2) Add 400 ml water to dissolve, let settle overnight, decant into bottle and make to 1 liter

pH MEASUREMENTS

Soil and drainage sediment samples are dampened with water in a glass beaker to a pasty consistency. Demineralized water is used for this purpose as it has a low buffer capacity and thus does not influence the pH of the sample. Measurement is made with a Fisher Acumet pH meter. Electrodes are stored in buffer overnight. A 30 minute warm up time is allowed for the instrument each morning. A 10 ml aliquot is taken from water samples for pH measurement.



LEGEND

- Magnetic contour (contour interval 200 γ).
- Magnetic low. (<200ε)
- Inferred fault.
- Road.
- Swamp.
- -460 CORRECTED MAGNETOMETER READING IN GAMMAS

SURVEY INSTRUMENT - SCINTREX MF-2

C.J. Hodgson

AMAX EXPLORATION INC.

HANS HAVEROEN COPPER PROPERTY

NICOLA MINING DIVISION—BRITISH COLUMBIA

MAGNETIC CONTOUR MAP

Scale : 1 inch = 400 feet

DATE REVISED	DATE PRINTED	Drawn by: A. H. S.	FIG. 5
		DATE 8/8/71	
		N.T.S File 92 H 15	

To accompany report: "THE HANS HAVEROEN COPPER PROPERTY"
By: R.L. Morton & A.A. Brickell

03512

TAB 3

CHALCO 1

CHALCO 2

CHALCO 3

LOU 11

LOU 12

BC HYDRO CUT

295820

TOUCH 5

TOUCH 7

TOUCH 8

TOUCH 9

TOUCH 6

OPEN

21499 M

TOUCH 4

TOUCH 2

21500 M

OPEN

MAGNUS 3

TOUCH 1

TOUCH 3

BROACH 1

MAGNUS 1

HALO 3

HALO 4

HALO 1 Fr.

BROACH 2

HALO 5

TOUCH 12

BASE LINE

HALO 6

SNO 1 Fr.

BROACH 3

TOUCH 14

RAM Fr.

TOP 2

TOP 1

BROACH 4

LEGEND

- Magnetic contour (contour interval 200 γ).
- Magnetic low. (<200 γ)
- Inferred fault.
- Road.
- Swamp.

03512

C.J. Hodgson

AMAX EXPLORATION INC.

HANS HAVEROEN COPPER PROPERTY

NICOLA MINING DIVISION—BRITISH COLUMBIA

MAGNETIC CONTOUR MAP

Scale : 1 inch = 400 feet.

DATE REVISED	DATE PRINTED		
		Drawn by: A.H.S.	FIG. 5
		DATE 8/8/71	
		N.T.S File 92 H 15	

To accompany report: "THE HANS HAVEROEN COPPER PROPERTY"
By: C.J. Hodgson, P.Eng., R.L. Morton & A.A. Brickell.

TAB 3
CHALCO 1
CHALCO 2
CHALCO 3
LOU 1
LOU 2
TOUCH 5
TOUCH 7
TOUCH 8
TOUCH 9
TOUCH 6
TOUCH 4
TOUCH
TOUCH 3
TOUCH 11
TOUCH 12
TOUCH 14
B.C. HYDRO CUT
295820
OPEN
V.N. 1 Fr.
21499 M
21500 M
HALO 1
HALO 2
HALO 2 Fr.
HALO 3
HALO
HALO 4
HALO Fr.
HALO 5
HALO 6
BROACH 1
BROACH 2
BROACH 3
BROACH 4
MAGNUS 1
MAGNUS 3
SNO 1 Fr
TOP 2
TOP 1
RAM Fr.
BASE LINE

LEGEND

- Soil sample site, sample number, p.p.m. Cu.
- Swamp.
- Road.
- Areas of anomalous copper values (>165 p.p.m.)

Range of Copper values in soils (p.p.m.)

○	0 - 80	Background
❶	81 - 100	Third order anomaly.
❷	101 - 200	Second order anomaly.
❸	>200	First order anomaly.

C.J. Hodgson

3512 M-3

AMAX EXPLORATION INC.

HANS HAVEROEN COPPER PROPERTY

NICOLA MINING DIVISION —— BRITISH COLUMBIA

GEOCHEMICAL MAP

Scale : 1inch = 400 feet.

DATE REVISED	DATE PRINTED	Drawn by: A. H. S.	FIG. 4(D)
		DATE 3/8/71	
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To accompany report: "THE HANS HAVEROEN COPPER PROPERTY"
By: C. J. Hodgson, P. Eng. : R. L. Morton & A. A. Brickell.