COPY - Mining Recorder

1978 Geochemical Assessment Report

TITLE	Hoodoo Creek Property
CLAIMS	BZT 1-9 Inclusive
COMMODITY	Mo, Cu
LOCATION	30 km north of head of Knight Inlet Latitude 51°21'N Longitude 125°39'W Vancouver Mining Division 92 N/5E
BY	C.J. Hodgson, P.Eng. (B.C.) and A.S. Marton
FOR	AMAX POTASH LIMITED
WORK PERIOD	July 7-17, 1977 and October 5-6, 1977

AMAX VANCOUVER OFFICE

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APPENDICES

ILLUSTRATIONS

SUMMARY

The Hoodoo Creek property consists of claims BZT #1-9, totalling 103 units, staked on behalf of AMAX Potash Limited during the period July 1-6, 1977. The property is located in the Vancouver Mining Division on Hoodoo Creek, 30 km north of the head of Knight Inlet in the Coastal Mountains of British Columbia.

The claims cover two separate molybdenum prospects: one on steep slopes north of Hoodoo Creek at elevation 1370 m (4500 feet) referred to as the Hoodoo North prospect, and one south of Hoodoo Creek near a logging road at elevation 760 m (2500 feet) referred to as the Hoodoo South prospect. This report describes the results of preliminary geochemical sampling of the two prospects conducted during July 7 - 17 and October 5 - 6, 1977.

92N-29

The Hoodoo North prospect is associated with a mid-Tertiary (Miocene - Pliocene ?) intrusive/extrusive complex of acid stocks and dykes, pyritic intrusive breccias, volcanic tuff and lahar deposits. Molybdenite and chalcopyrite occur in a vein stockwork zone associated with one of the stocks. Chalcopyrite occurs also with sphalerite and galena in widespread peripheral quartz veins and in some intrusive breccias. A broad pyritic halo roughly four square km in extent is centred on the intrusive stocks, dykes and breccias. Soil sampling around the stockwork zone has partially outlined a 300 m diameter +50 ppm Mo anomaly coincident with a +200 ppm Cu anomaly.

92N-34

At the Hoodoo South prospect, coarse grained quartz monzonite and fine to medium grained granodiorite, all of presumed Mesozoic age, intrude foliated medium grained Coast Range quartz diorite. Molybdenite occurs in weak stockwork zones in fine grained granodiorite, and in widespaced quartz veins in medium grained granodiorite and coarse grained quartz monzonite.

Limited geochemical sampling partially outlined a +50 ppm Mo soil anomaly over a distance of 200 m in an overburden covered area roughly central to the mapped surface showings.

A total of $8,939.11 was expended on geochemical work on the property in 1977 subsequent to claim staking. Orthophoto and fair drawn base maps at scales of 1:5,000 and 1:10,000 prepared in March, 1978 for use during the summer program, cost an additional $3,140.00.

INTRODUCTION

General Statement

The Hoodoo Creek property encompasses two separate molybdenite prospects on opposite sides of Hoodoo Creek. Because of their physical separation and contrasting features the two prospects are treated separately throughout this report. They are referred to as the Hoodoo North and Hoodoo South prospectsrespectively.

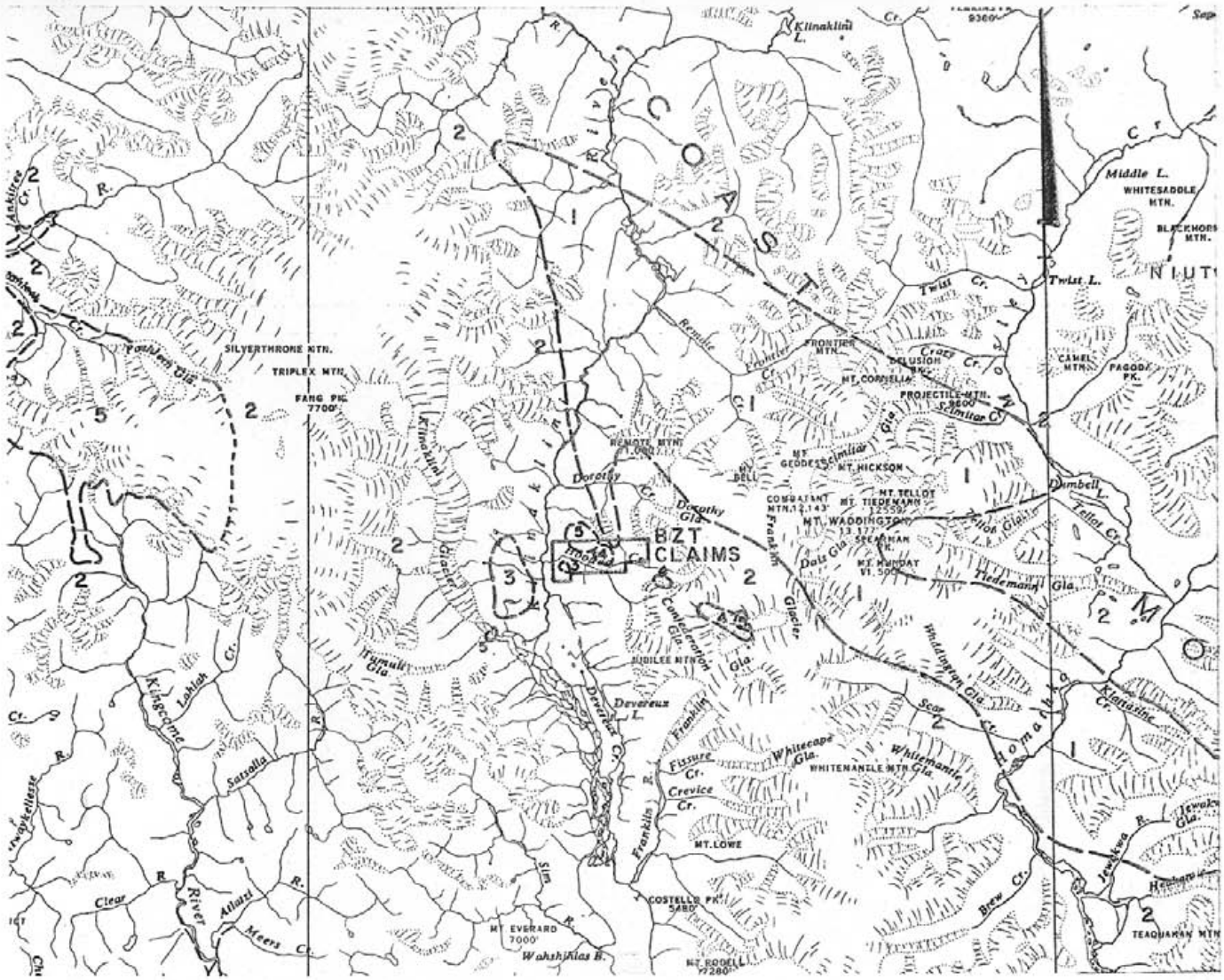
Work on the property in 1977 was confined essentially to preliminary mapping and sampling of the Hoodoo North and South prospects. Work was conducted by A. Marton assisted by D. Barron during the period July 7 - 17, 1977 and by B. Kyba, C. Hodgson and A. Marton on October 5 - 6, 1977.

Location, Access, Topography

The Hoodoo Creek Mo-Cu property consists of nine claims (BZT #1-9) totalling 103 units centred on Hoodoo Creek, an eastern tributary of the Klinaklini River which drains the Mt. Waddington Range of the Coast Mountains (Figure 1). Hoodoo Creek is located approximately 32 km north of the head of Knight Inlet at latitude 51°21'N, longtiude 125°39'W.

Access to the property is by helicopter from Port McNeil (Okanagan Helicopters) or Port Hardy (Vancouver Island Helicopters) on Vancouver Island, or from Bella Coola (Transwest) on the mainland, all of which are a distance of 120-140 km from the property. A logging road from Percy Logging camp at Knight Inlet which is accessible by boat, wheel or float-mounted fixed-wing aircraft leads to part of the property south of Hoodoo Creek.

The property lies in rugged terrain near the heart of the Coast Range Mountains. Relief is 1800 m (6000 feet); elevations range from 300 m (1000 feet) on lower Hoodoo Creek to 2150 m (7000 feet) on the ridge near the northeastern corner



L E G E N D

TERTIARY (MIOCENE - PLIOCENE).

5 *Volcanic flows, ash, breccia.*

4 *Quartz monzonite porphyry.*

JURASSIC - CRETACEOUS

3 *Coarse grained quartz monzonite.*

2 *Foliated quartz diorite, diorite.*

PALEOZOIC AND/OR MESOZOIC

1 *Gneiss, amphibolite, schist.*

Geology from unpublished G.S.C. map by Woodsworth.

AMAX POTASH LIMITED

HOODOO CREEK PROPERTY
BZT CLAIMS
VANCOUVER MINING DIVISION — BRITISH COLUMBIA

LOCATION AND REGIONAL GEOLOGY

SCALE 40 0 40 KILOMETRES
10 0 10 MILES
1 : 633,600

N. T. S. Ref. 92 N 5

FIG. 1

of the property. The only relatively flat ground occurs on ridge crests near the Hoodoo North and South prospects. Hillslopes and tributary streams are precipitous, and the lower reaches of Hoodoo Creek are incised to form an inaccessible canyon. Although the currently active logging road south of Hoodoo Creek is within three km of the Hoodoo North prospect, it would be prohibitively expensive to extend the road to the prospect at this stage.

Tree line is at about 1525 m (5000 feet) with mature stands of fir and spruce at lower elevations. On north-facing slopes, permanent snow and icefields extend down as far as 1375 m (4500 feet) elevation.

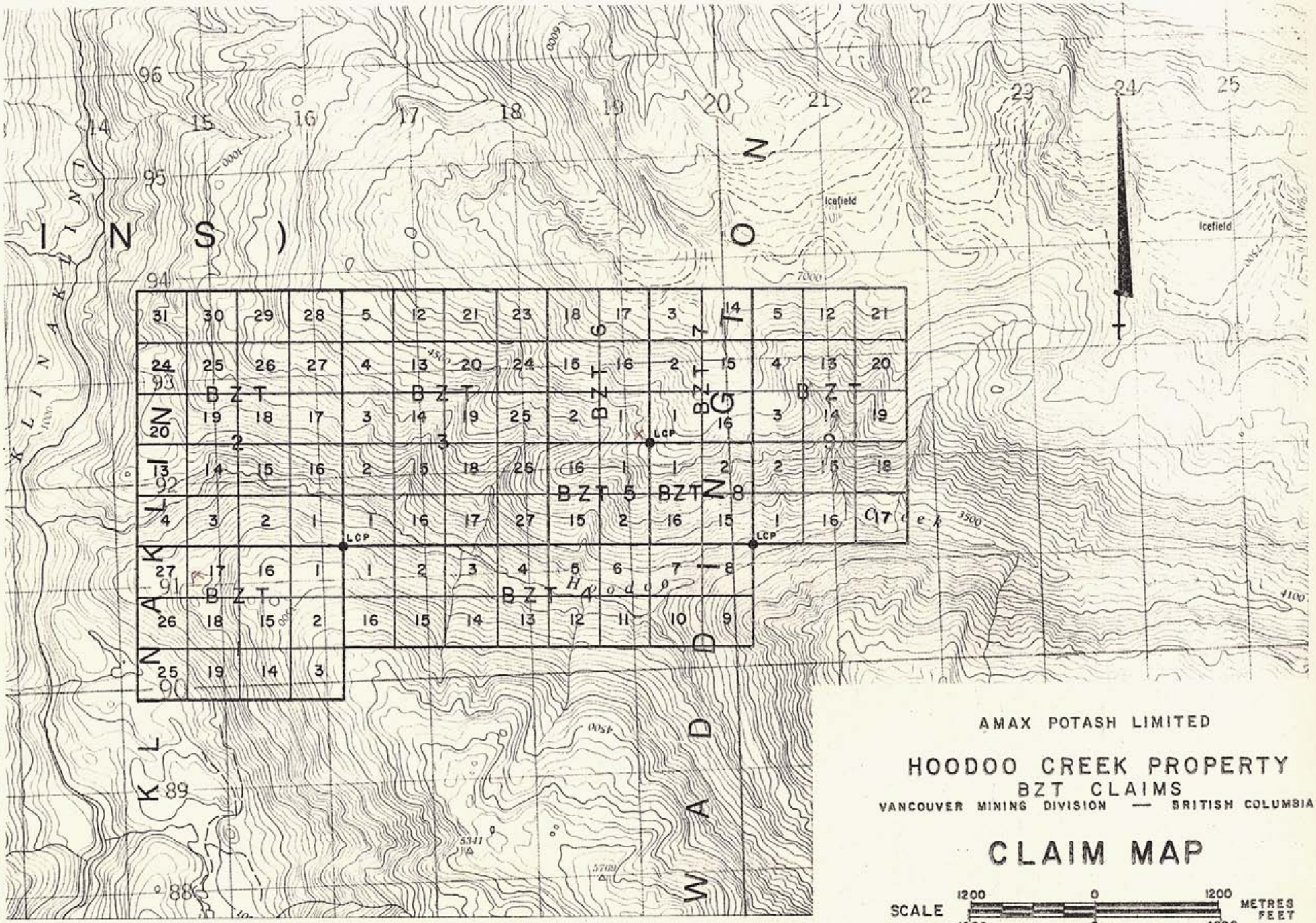
Total precipitation has been estimated as 150 cm per year rain equivalent, and snowfall has been estimated as 500 cm per year above elevation 1000 m making snow avalanches a major hazard at higher elevations. The effective field season is April to October at lower elevations and July to September above treeline.

Claims Data

Nine BZT claims totalling 103 units were located by B.W. Kyba, and A.S. Marton, agents for AMAX Potash Limited, between July 1 and 6, 1977, and recorded at Vancouver on July 28, 1977.

Claims and units are shown on Figure 2, and pertinent claims data are tabulated below.

All legal corner posts were physically emplaced, as were most corner and identification posts. Rugged terrain made it impossible to mark many location lines.


AMAX POTASH LIMITED
HOODOO CREEK PROPERTY
BZT CLAIMS
VANCOUVER MINING DIVISION — BRITISH COLUMBIA
CLAIM MAP
SCALE
1200 0 1200 METRES
4000 0 4000 FEET
1 : 50,000
LCP
Icefield
Icefield
BZT 1
BZT 2
BZT 3
BZT 4
BZT 5
BZT 6
BZT 7
BZT 8
BZT 9
N. T. S. Ref. 92 N 5
FIG. 2

CLAIM	UNIT NUMBERS	TOTAL NUMBER NO. OF UNITS	LOCATION DATE	DATE RECORDED	EXPIRY DATE
BZT #1	1-3,14-19, 25-27	12	July 2/77	July 28/77	July 28/78
2	1-4,13-20, 24-31	20	July 2-4/77	July 28/77	July 28/78
3	1-5,12-21 23-27	20	July 2-4/77	July 28/77	July 28/78
4	1-16	16	July 2/77	July 28/77	July 28/78
5	1,2,15,16	4	July 2-5/77	July 28/77	July 28/78
6	1,2,15-18	6	July 2-5/77	July 28/77	July 28/78
7	1-3,14-16	6	July 2-6/77	July 28/77	July 28/78
8	1,2,15,16	4	July 2-5/77	July 28/77	July 28/78
9	1-5,12-21	15	July 1-2/77	July 28/77	July 28/78
		103			

REGIONAL GEOLOGY

The property lies near the centre of the Coast Crystalline Belt, a tectonic belt of gneisses, schists and granitoid rocks which was metamorphosed and intruded during the Mesozoic and Early Tertiary and was uplifted during the Late Tertiary.

Superimposed on the older Coast Crystalline rocks in the area between Franklin Glacier and Mount Silverthrone are much younger intrusive and extrusive rocks of Miocene to Recent age.

At Franklin Glacier, 16 km southeast of the property, a quartz monzonite stock (6.9 m.y.) and younger porphyry dykes (3.2 m.y.)[1]. intrude comagmatic rhyolitic and feldspar porphyry tuffs, agglomerates and flows[2]. Between Franklin Glacier and Hoodoo Creek, Miocene stocks are largely buried by ice-fields which cover the ridge between Hoodoo Creek and Scimitar Glacier. In the Mt. Silverthrone area 50 km northwest of Hoodoo Creek, undated but obviously pre-glacial columnar basalt and ash flows occur over an area of 300 sq km and attain a maximum thickness of 1000 m. Small basalt plugs and minor quartz porphyry dykes were noted near the toe of the Klinaklini Glacier between Hoodoo Creek and Mt. Silverthrone.

HOODOO NORTH PROSPECT

Geology

At the Hoodoo North prospect on claims BZT 5-8, several mid-Tertiary stocks or small plugs, pyritic intrusive breccias, and a myriad of porphyry dykes of several distinct compositions intrude gneiss and quartz diorite of the Coast Plutonic Complex. Two extrusive phases occur on the claims and, although somewhat more mafic than the intrusive phases, are thought to be comagmatic with them. Lapilli tuff is relatively early in the sequence and predates most of the intrusive phases. Laharic breccia, one of the latest phases, is cut only by minor andesite dykes.

Sampling and Analytical Procedure

At the Hoodoo North prospect, 36 soil samples were collected at 50 m intervals on irregular traverse lines around the main showing, and 30 rock chip samples of mineralized and unmineralized rock were collected from the several Tertiary

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1. G. Woodsworth, G.S.C., pers. comm.
2. B. McKnight, 1965, Tertiary igneous activity in the Franklin Glacier area; B.Sc. Thesis, Univ. B.C.

rock types present. All soil samples were collected at a depth of 20 cm or more. Below treeline at this depth the B horizon of wooded brown soil was sampled, whereas above treeline unaltered parent till on which no recognizable soil profile is developed was sampled.

Soils and rock chips were analyzed for ten metals (Mo, Cu, Co, Ni, Mn, Fe, Ag, Pb, Zn, W) by Mr. Peter Rossbacher of Rossbacher Laboratory Ltd., Burnaby. Soils were sieved to -80 ASTM mesh and the coarse fraction discarded. Rock chips were crushed, split and pulverized to -80 ASTM mesh.

Analytical procedure was as follows: for all metals except W, a 0.5 g split of the sample was dissolved in a mixture of concentrated HNO_3 (15%) and $HClO_4$ (85%). The resultant solution was diluted to 10 ml and analyzed for each metal by standard atomic absorption technique. For W, a 1.0 g split of the sample was fused with a mixture of $NaCO_3$, KNO_3 and NaCl in the ratio 5:1:4. After fusion the sample was cooled and then heated with water. The resultant water extract was analyzed colourimetrically by the standard potassium thiocyanate method.

Results of Geochemical Sampling

Analytical results are tabulated in Appendix I and shown on Figures 3 and 4 for Mo and Cu only. Other metals are listed only where they exceed the anomalous threshold for each particular metal. Thresholds for the ten metals at both Hoodoo North and Hoodoo South showings were established from inspection of regional data and are tabulated below.

	Anomalous Threshold	Positive	Anomalous	Highly Anomalous
Mo	4 ppm	4-9	10-50	>50
Cu	100			
Co	50			
Ni	50			
Mn	1000			
Fe	5.0%			
Ag	1 ppm			
Pb	50			
Zn	200			
W	2			

A +50 ppm Mo anomaly (peak value - 194 ppm Mo) is centred on the mineralized zone and measures about 300 m in diameter. Associated with the Mo soil anomaly are anomalous amounts of Cu (200-1320 ppm), Ag (1.0-4.8 ppm), Zn (200-600 ppm) and locally Pb (100-230 ppm) and Fe (up to 9.2%).

HOODOO SOUTH PROSPECT

Geology

The Hoodoo South prospect at elevation 760 m (2500 feet) near a logging road south of Hoodoo Creek consists of several minor molybdenum showings over an area of 500 x 500 m associated with granodiorite and quartz monzonite stocks which intrude foliated quartz diorite. All intrusions are believed to be phases of the Coast Plutonic Complex of Jura-Cretaceous age.

Sampling Procedure

At Hoodoo South, 28 soil, 17 rock chip and 2 silt samples were collected over the general area of mineralization. Soils were collected at 50 m intervals from the reddish BF horizon of podzolic soils.

Sample processing and analytical procedure were as outlined previously for Hoodoo North samples.

Results of Geochemical Sampling

Results indicate the presence of a +50 ppm Mo soil anomaly over a distance of 200 m in an overburden covered area roughly central to four molybdenum showings. Soil samples from this area are also weakly anomalous in Cu (up to 116 ppm) and Ag (up to 1.4 ppm).

C.J. Hodgson

July 12, 1978

C.J. Hodgson, P.Eng. (B.C.)

APPENDIX I - STATEMENT OF COSTS

SUMMARY AND PERIOD OF WORK

Preparatory Survey	February 13, 1978 - April 13, 1978
Geochemical Survey	July 7-17, 1977
	October 5-6, 1977

Mapping - McElhanney Surveying and Engineering Ltd. - Vancouver

Orthophoto Mapping	- 1:5,000 with 10 meter contours	$1,560.00
Fairdrawn, Topographic Mapping	- 1:10,000 with 20 meter contours	1,580.00

Personnel

C.J. Hodgson, P.Eng. PhD - Staff Geologist 601-535 Thurlow Street, Vancouver, B.C. October 5-6, 1977	2 days @ $132.96	265.92
A.S. Marton, B.Sc. - Geologist 705 - 2187 Bellevue Avenue, West Vancouver July 7, 13-17 & October 5-6, 1977	8 days @ $59.17	473.36
W.O. Barron - Junior Assistant 22288 - 48th Avenue, Langley July 7,8,14-17, 1977	6 days @ $27.61	165.66

Transportation

Okanagan Helicopters - July 7,13,15,17, 1977 Port McNeil - Hoodoo Creek	2,911.67
Transwest Helicopters -Oct. 5,6, 1977 Bella Coola - Hoodoo Creek	2,974.80
Pacific Western Airlines - July 1, 1977 Port Hardy - Return	157.60
West Coast Air Services - October 4, 1977 Vancouver-Bella Coola - Return	320.00

Accommodation & Board - 16 man days @ $20.00/man day 320.00

Geochemical Analyses - Rossbacher Laboratory, Burnaby

68 soil & silt samples(Mo,Cu,Co,Ni,Mn,Fe,Ag,Pb,Zn,W)	@ $5.70	387.60	
50 rock chip (Mo,Cu,WO_3)	@ $8.00	400.00	
50 rock chip (Pb,Zn)	@ $5.00	250.00	
25 rock chip (Ag)	@ $4.50	112.50	1,150.10

Report Writing & Preparation 200.00

$12,079.11

Application

One year each BZT 1, 2, 3, 4, 5, 7, 8, 9,
Two years each BZT 6,

C.J. Hodgson

APPENDIX II - ANALYTICAL RESULTS AND PROCEDURES

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

CANADA
TELEPHONE: AREA CODE 604

AUG 6 1977

FILED

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 7069 A

TO: Amax Minerals Exploration

INVOICE NO. 7079

PROJECT 817, KNIGHT INLET

DATE ANALYSED Aug 1/77

No.	Sample	pH	Mo	Cu	Co	Ni	Mn	Fe	Ag	Pb	Zn	W		No.
01	77C55665		3	176	36	50	1000	5·0	1.2	40	560	2		01
02	666		5	208	40	40	760	5·3	1.2	36	272	2		02
03	668		3	92	30	30	680	3.9	1.0	28	168	0		03
04	669		1	52	20	24	560	3.2	1.0	48	236	0		04
05	670		1	36	4	12	400	1·5	1.0	50	172	0		05
06	688		13	200	20	24	640	4.7	1.6	36	184	0		06
07	689		20	148	16	20	920	5·4	1.8	36	168	2		07
08	690		22	148	12	20	280	4.9	1.4	30	116	2		08
09	691		20	120	10	20	240	4·6	1.8	30	96	2		09
10	692		30	240	12	30	260	5·9	4.2	36	156	0		10
11	693		22	236	16	36	400	6.4	2.4	32	200	0		11
12	694		16	172	16	44	480	6·2	2.2	28	188	0		12
13	695		48	108	14	28	360	6.4	2.0	30	92	0		13
14	696		43	132	12	30	240	6·0	1.6	28	92	0		14
15	697		36	152	16	28	440	4·8	1.6	30	148	0		15
16	698		42	142	10	20	280	5·5	2.8	28	128	0		16
17	699		28	400	12	24	240	6·1	1.8	28	128	0		17
18	700		12	80	8	16	160	4·0	1.0	36	112	0		18
19	701		30	156	14	28	920	6·0	2.6	30	136	0		19
20	702		16	116	10	16	160	4·5	1.2	36	160	0		20
21	703		16	136	8	20	200	5·7	1.6	36	140	0		21
22	704		14	200	20	28	440	5·1	1.6	36	172	0		22
23	705		14	180	10	24	280	6·4	1.6	40	220	0		23
24	706		13	200	18	30	200	2·0	2.8	48	176	2		24
25	708		56	160	12	20	200	5·6	1.4	40	76	2		25
26	709		156	156	8	16	120	5·6	1.2	32	68	2		26
27	710		144	252	12	16	120	7·0	2.2	40	92	2		27
28	712		40	220	16	20	360	7·0	3.0	70	268	2		28
29	714		78	356	16	28	440	9·2	1.8	90	216	2		29
30	715		22	212	24	16	1200	5·8	2.0	18	× 500	0		30
31	720		26	156	10	20	200	5·7	1.2	28	52	0		31
32	721		22	48	8	16	120	5·0	1.0	20	32	0		32
33	722		16	32	8	20	120	6·4	1.0	28	40	0		33
34	723		6	12	4	10	80	2·2	0.4	10	12	0		34
35	724		8	60	10	16	200	5·7	0.8	24	56	0		35
36	725		6	60	8	20	200	5·4	1.0	24	68	0		36
37	726		2	36	10	28	200	7·2	1.0	28	52	0		37
38	727		11	24	4	20	120	5·0	1.2	24	44	0		38
39	728		6	12	4	12	80	2·5	0.4	12	16	0		39
40	U 26		6	24	6	12	360	2·5	0.2	24	32	2		40

Certified by _____

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

TELEPHONE: 294-6416
AREA CODE: 604

AUG 16 1977

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 7069-A

TO: Amax Minerals Exploration

INVOICE NO. 7079

PROJECT 812, KNIGHT INLET

DATE ANALYSED Aug/77

No.	Sample	pH	Mo	Cu	Co	Ni	Mn	Cr	Ag	Pb	Zn	W		No.
01	77CSS729		16	40	20	16	320	46	1.0	20	52	0		01
02	730		12	28	20	16	160	50	0.8	20	52	0		02
03	731		12	48	16	10	200	21	0.6	20	56	0		03
04	732		90	48	16	8	80	4.5	0.8	16	28	0		04
05	733		60	36	16	8	80	5.8	0.8	16	20	0		05
06	734		58	116	28	28	400	6.6	1.4	24	148	0		06
07	735		98	108	20	24	240	6.3	1.0	20	140	0		07
08	736		108	56	22	20	120	8.5	0.8	24	52	0		08
09	737		20	36	10	12	80	1.7	0.2	8	28	0		09
10	738		18	28	10	10	60	2.4	0.6	12	16	0		10
11	739		16	44	20	16	240	6.0	0.6	12	54	0		11
12	740		15	20	10	8	60	1.0	0.2	4	20	0		12
13	741		38	36	12	10	80	1.8	0.6	8	16	0		13
14	742		10	36	12	10	100	2.4	0.6	16	14	0		14
15	743		8	32	12	8	80	1.2	2.2	8	20	0		15
16	744		38	40	20	20	80	6.8	1.0	24	36	0		16
17	745		14	64	12	12	100	1.6	0.4	16	32	0		17
18	746		4	6	10	6	20	0.4	0.2	4	12	0		18
19	750		8	160	24	24	440	4.8	1.4	40	280	0		19
20	751		12	160	24	20	480	4.2	2.0	32	200	2		20
21	752		16	212	28	30	640	5.4	2.2	32	264	2		21
22	753		10	180	30	32	320	6.9	2.2	40	224	2		22
23	754		18	136	24	24	280	7.9	1.4	40	260	2		23
24	755		20	736	30	20	280	6.6	2.8	40	212	0		24
25	756		12	>396	50	36	760	5.6	2.2	44	>480	0		25
26	757		16	356	28	36	320	7.5	2.8	40	208	0		26
27	758		132	>440	32	36	320	8.8	2.6	48	220	2		27
28	759		56	324	30	32	480	6.6	2.4	64	340	0		28
29	760		>194	>1320	36	40	320	7.0	4.8	230	>400	2		29
10	1137		2	10	12	10	480	1.5	.4	8	50			10
11	1138		1	6	8	20	520	2.0	.6	10	304			11
12	S 1139		4	98	32	44	3100	1.1	1.0	42	600			12
13	T 1140		2	52	28	40	500	4.2	.6	14	410			13
14	L 1141		8	300	36	48	>1000	3.3	1.4	30	940			14
15	T 1142		1	14	12	20	400	1.8	.2	6	70			15
16	1143		50	10	4	16	200	1.2	.4	10	40			16
17	1144		4	50	8	36	2300	4.2	1.0	600	1600			17
18	1145		1	70	12	20	2100	1.0	.6	8	160			18
19	L 1146		6	224	32	44	1500	1.0	1.0	96	1000			19
06	L 1984		6	182	22	28	168	3.9	1.0	126	>560			05
07	T 1985		14	1900	36	20	80	0.6	22.0	34	>440			07
08	1986		24	1420	40	30	>500	0.3	18.0	70	>1000			08
09	1987		?	580	36	20	>440	5.6	24.0	128	>1300			09

Rossbacher Laboratory
GEOCHEMICAL ANALYSTS & ASSAYERS

AMAX
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 7179

INVOICE NO. 7172

TO: AMAX MINERALS EXPLORATION
601-535 Thurlow St.
Vancouver, B.C.

DATE RECEIVED

DATE ANALYSED Oct, 1977

ATTN: Project 817

SAMPLE NO.:	oz/T Au
7CKT1147	0.001
1148	0.001
1156	0.001
1157	0.001

Certified by F. Rossbacher

Rossbacher Laboratory

GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. BRANCH AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 7069 A

INVOICE NO. 7079

DATE RECEIVED

DATE ANALYSED Aug. 1977.

TO: AMAX MINERALS EXPLORATION.
601-535 Thurlow Street
Vancouver, B.C.

ATTN: 817, Hoodoo-Knight Inlet, Order # 2437.

SAMPLE NO.:	% tot Mo	% Cu	% PB	% Zn	oz/t Ag	% WO_3
77 CST 667	0.007	0.01	0.02	0.02	0.08	0.04
77 CST 671	0.005	0.02	0.02	0.04	0.10	0.02
77 CST 672	0.002	0.11	0.02	0.02	0.14	0.08
77 CST 672 A	0.004	0.01	0.02	0.02	0.02	0.02
77 CST 673	0.001	0.01	0.02	0.02	0.02	0.06
77 CST 674	0.002	0.02	0.02	0.02	0.18	0.04
77 CST 675	0.001	0.01	0.02	0.02	0.08	0.02
77 CST 676	0.001	0.08	0.02	0.02	0.12	0.08
77 CST 677	0.010	0.01	0.02	0.02	0.04	0.04
77 CST 679	0.014	0.02	0.02	0.02	0.06	0.04
77 CST 680	0.003	0.01	0.02	0.02	0.08	0.02
77 CST 681	0.011	0.05	0.03	0.02	1.64	0.02
77 CST 682	0.008	0.23	0.02	1.88	0.46	0.02
77 CST 663	0.003	0.05	0.02	0.02	0.10	0.02
77 CST 684	0.008	0.01	0.02	0.02	0.02	0.02
77 CST 685	0.004	0.42	0.02	0.04	0.64	0.04
77 CST 686	0.184	0.01	0.02	0.02	0.02	0.02
77 CST 687	0.006	0.01	0.02	0.02	0.02	0.04
77 CST 707	0.073	0.01	0.02	0.02	0.02	0.04
77 CST 711	0.014	0.02	0.02	0.02	0.06	0.02
77 CST 713	0.002	0.01	0.02	0.02	0.08	0.04
77 CST 716	0.020	0.01	0.02	0.02	0.04	0.04
77 CST 717	0.001	0.07	0.02	0.02	0.06	0.04
77 CST 718	0.366	0.02	0.02	0.02	0.06	0.04
77 CST 719	0.002	0.01	0.02	0.02	0.02	0.08

Certified by F. Rossbacher

Procedures for Collection and Processing of Geochemical Samples

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

Amax Exploration, Inc.
Vancouver Office.

September 1970

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.

APPENDIX III

STATEMENT OF QUALIFICATIONS

NAME	B.W. Kyba
EDUCATION	Four year BSc in Geology University of Alberta
EXPERIENCE	Geologist, Brascan Resources - 1974 Geologist, Pechiney Development Ltd. - 1975-1976 Staff Geologist, AMAX Minerals Exploration, 1976 Present

NAME	AL STEPHEN BELA MARTON
ADDRESS	705 - 2187 Bellevue Ave., West Vancouver, B.C.
EDUCATION	B.Sc. Degree in Geology, May, 1977 - University of British Columbia
EXPERIENCE	May - Sept. 1971 - Geological Assistant Noranda Exploration May - Sept. 1972 - Geological Assistant Noranda Exploration May - Sept. 1973 - Crew Chief, Blaster Granby May 1974 - Sept. 1976 - Geologist Duval International

NAME	W.D. Barron
ADDRESS	22288 - 48th Avenue Langley, B.C.
EDUCATION	B.C. Institute of Technology - 1st year - Surveying
EXPERIENCE	Attendant - B. Barron & Son Ltd. - 1975

Rossbacher Laboratory
GEOCHEMICAL ANALYSTS & ASSAYERS

2225 S. SPRINGER AVE.,
BURNABY, B.C.
CANADA
TELEPHONE: 299-6910
AREA CODE: 604

April 30, 1974

SUMMARY OF SOME ANALYTICAL TECHNIQUES CURRENTLY IN USE AT ROSSBACHER LABORATORY

A ANALYTICAL TECHNIQUES FOR GEOCHEMICAL SAMPLES

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 1/2 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 pulverizer 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 35% 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 $Hx1O_3$ 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 2133 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 - Acetylene 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 113

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

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 lemmon yellow; compare color standard 10x)
9. Add ½ 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

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

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 400 mμ and subtract from sulphate reading
5. Calculate ppm sulphate from the graph

Reagent

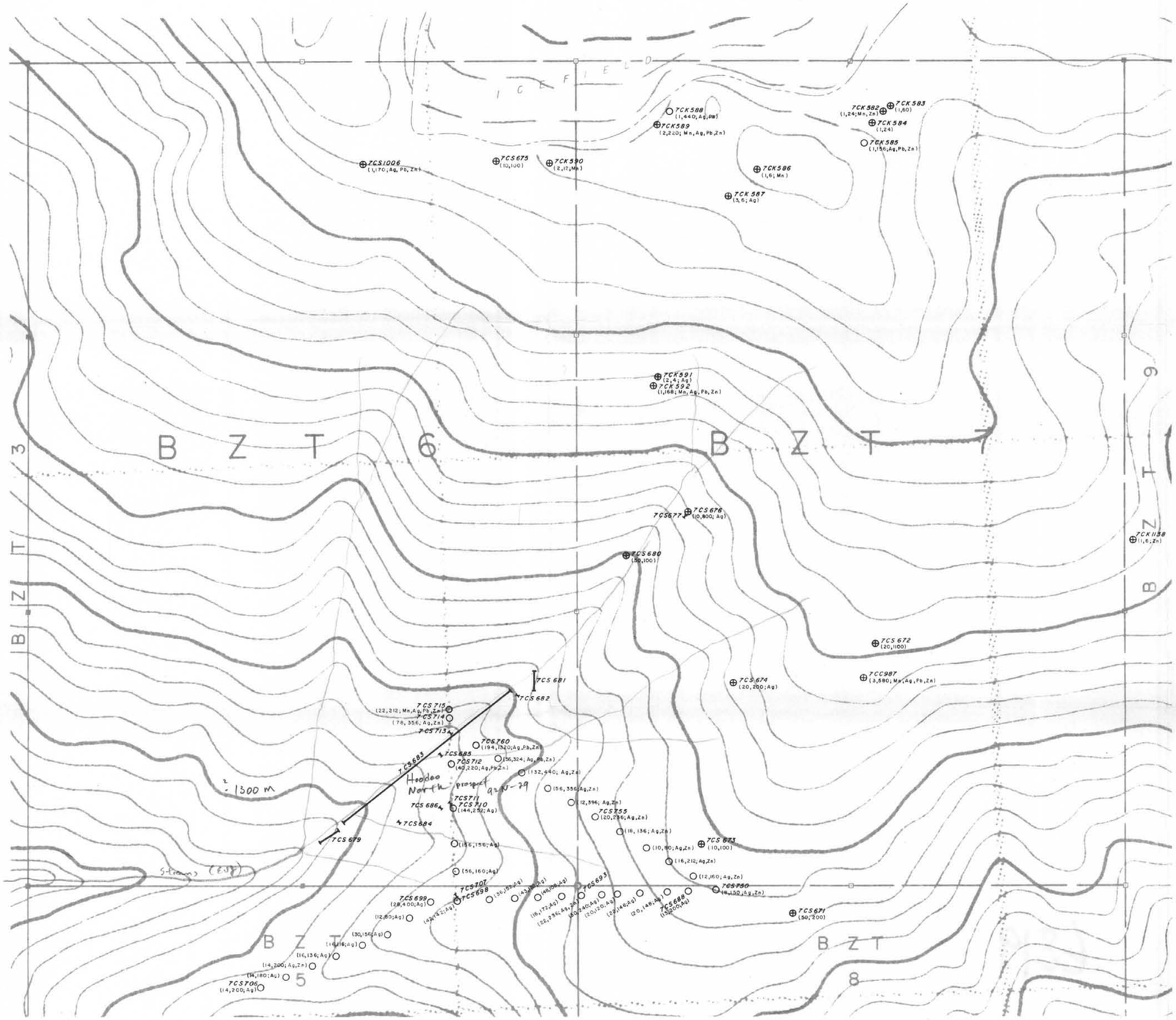
Dissolve 54 grams red mercuric oxide (J.T. Baker 2620- Can Lab) in 185 ml 70% perchloric acid and 20 ml H_2O, shake for one hour. Add 46.3 grams ferric perchlorate [$Fe(ClO_4)_3 \cdot 6H_2O$] (GFS 39) and 47 grams aluminum perchlorate [$Al(ClO_4)_3 \cdot 8H_2O$] (GFS 2) Add 400 ml water to dissolve,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

ROSSBACHER LABORATORY

P. Rossbacher



L E G E N D

7CK588 (1,440; Ag, Pb)	Soil	Sample site, sample number (p.p.m. Mo, Cu; elements with anomalous threshold values) see APPENDIX I for other results.
7CS 674 (20,200; Ag)	Rock chip	
7CS682	Continuous chip sample (see APPENDIX I for results).	
	Legal corner post (location established by chain and compass).	
	Identification and/or corner post, claim boundary (located, unlocated).	

p.p.m. Mo IN SOIL AND ROCK CHIP

< 4	Background.
4 - 9	Positive.
10 - 50	Anomalous.
> 50.	Highly anomalous.

NOTE —
Claim posts and boundary lines established by chain and compass utilizing a modified enlargement of 1:50,000 N.T.S. map sheet 92 N 5 as base.

AMAX POTASH LIMITED

HOODOO CREEK PROPERTY
VANCOUVER MINING DIVISION — BRITISH COLUMBIA

GEOCHEMICAL MAP
(HOODOO NORTH PROSPECT)

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
NO. 6819

SCALE 160 0 160 METRES
400 0 400 FEET
1 : 5,000

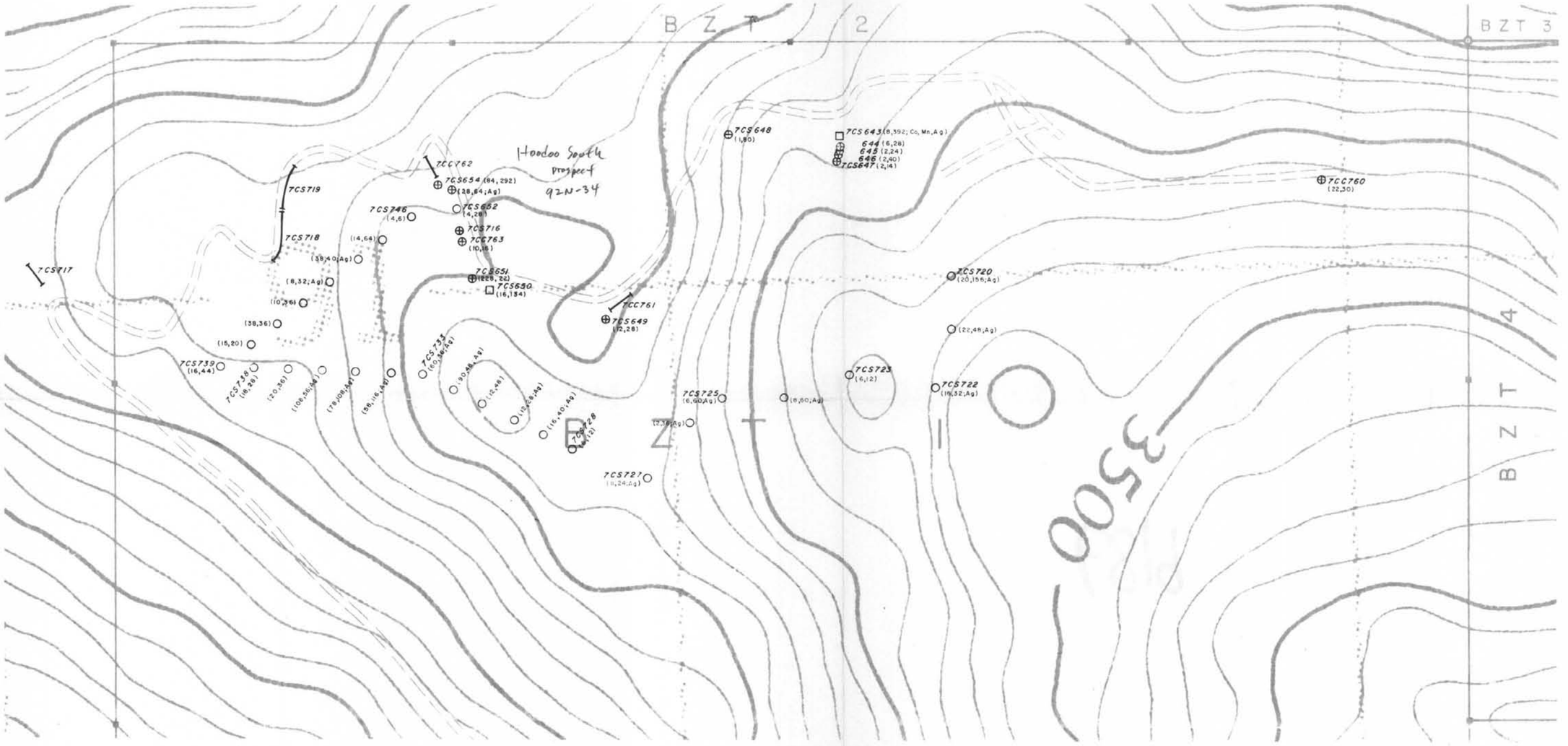
CJHodgson

To accompany 1978 Geochemical Assessment Report by: C. J. Hodgson and A. S. Marton.

Vancouver — H.P.

N.T.S. Ref. 92 N 5

FIG. 3



L E G E N D

7CS652 (4,28)	Soil
7CS643 (8,392;Co,Mn,Ag)	Silt
7CC763 (10,16)	Rock chip

} Sample site, sample number (p.p.m. Mo, Cu; elements with anomalous threshold values) see APPENDIX I for other results.

7CS717 — Continuous chip sample (see APPENDIX I for results).

Road.

Legal corner post (location established by chain and compass).

Identification and/or corner post, claim boundary (located, unlocated).

p.p.m. Mo IN SOIL, SILT AND ROCK CHIP

< 4	Background.
4 - 9	Positive.
10 - 50	Anomalous.
> 50	Highly anomalous.

NOTE —
Claim posts and boundary lines established by chain and compass utilizing a modified enlargement of 1:50,000 N.T.S. map sheet 92 N 5 as base.

AMAX POTASH LIMITED

HOODOO CREEK PROPERTY

VANCOUVER MINING DIVISION — BRITISH COLUMBIA

GEOCHEMICAL MAP
(HOODOO SOUTH PROSPECT)

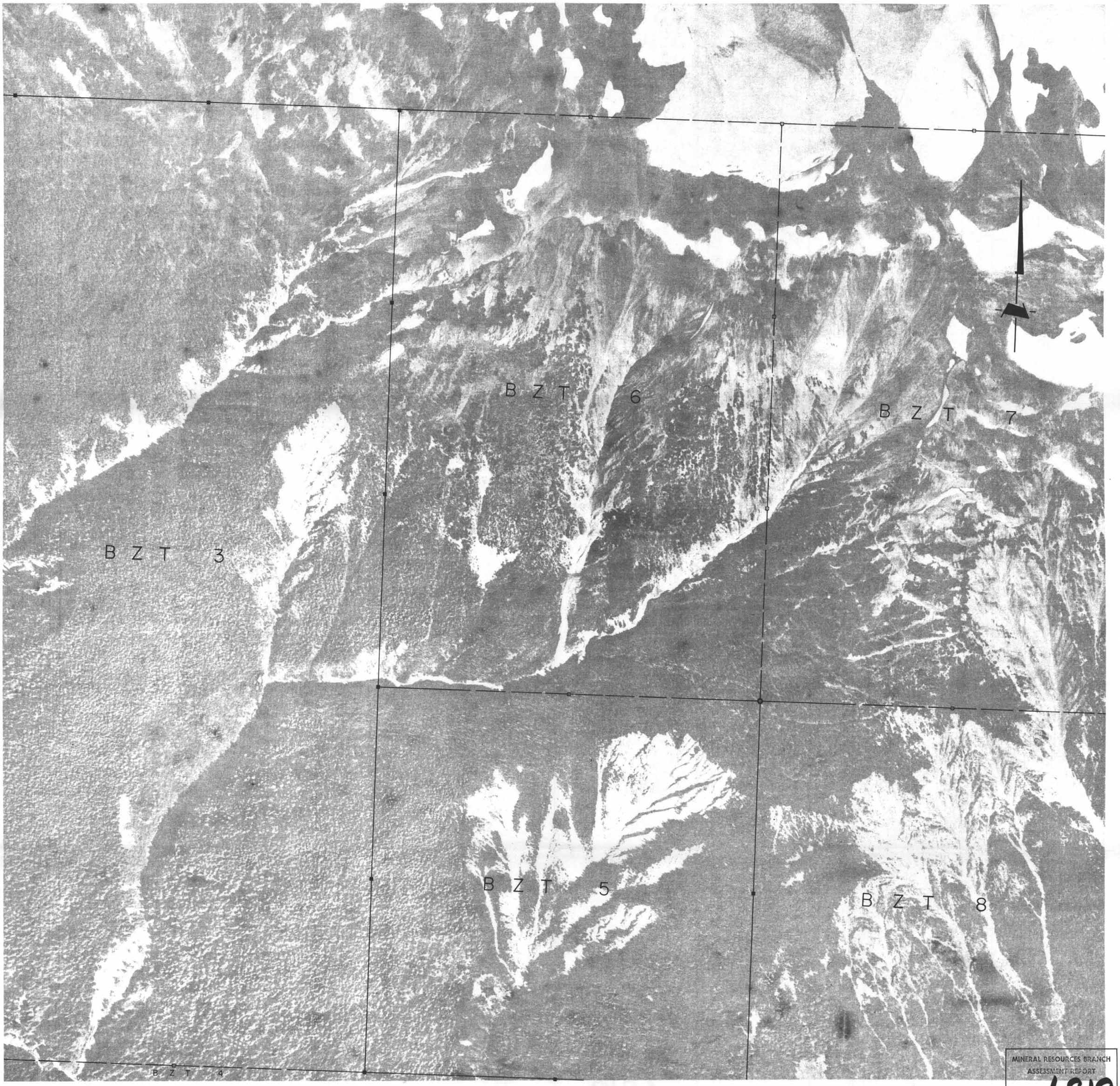
SCALE 160 0 160 METRES
400 0 400 FEET
1 5,000

To accompany 1978 Geochemical Assessment Report by: C. J. Hodgson and A. S. Marton.

Vancouver — H. P.

N. T. S. Ref. 92 N 5

FIG. 4



M S E L Ref. No. 06441-D

Orthophoto prepared by: McElhaney Surveying & Engineering Ltd.

L E G E N D

Legal corner post (location established by chain and compass).

Identification and/or corner post, claim boundary (located, unlocated).

AMAX POTASH LIMITED

HOODOO CREEK PROPERTY

VANCOUVER MINING DIVISION – BRITISH COLUMBIA

ORTHOPHOTO

BZT 3, 5, 6, 7 AND 8 CLAIMS

SCALE 160 0 160 METRES
400 0 400 FEET
1 : 5,000

C J Hodgson

To accompany 1978 Geochemical Assessment Report by: C. J. Hodgson and A. S. Marton.

Vancouver — H P

N. T. S. Ref. 92 N 5

FIG. 5a

B Z T 6

B Z T 7

B Z T 3

1400

1350

1300

1400 m

1450

1500

B Z T 5

B Z T 8

B Z T 4

Topographic contours with 10 meter contour interval prepared by: McElhanney Surveying & Engineering Ltd.

L E G E N D

Legal corner post (location established by chain and compass).

Identification and/or corner post, claim boundary (located, unlocated).

AMAX POTASH LIMITED

HOODOO CREEK PROPERTY

VANCOUVER MINING DIVISION – BRITISH COLUMBIA

FAIRDRAWN TOPOGRAPHIC MAP

BZT 3, 5, 6, 7 AND 8 CLAIMS

SCALE 160 0 160 METRES
400 0 400 FEET
1 5,000

CJHodgson

To accompany 1978 Geochemical Assessment Report by C. J. Hodgson and A. S. Marton.

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N. T. S. Ref. 92 N 5

FIG. 5b

B Z T 1

B Z T 2

B Z T 3

B Z T 4

B Z T 5

B Z T 6

B Z T 7

B Z T 8

B Z T 9

Hoodoo Creek

Hoodoo South 92N-34

Hoodoo North 92N-39

(6490ft)

W/L 288

Topographic contours with 20 meter contour interval prepared by: McElhaney Surveying & Engineering Ltd.

L E G E N D

Legal corner post (location established by chain and compass).

Identification and/or corner post, claim boundary (located, unlocated).

M.S.E.L. REFERENCE No. 06441 O

AMAX POTASH LIMITED

HOODOO CREEK PROPERTY

VANCOUVER MINING DIVISION — BRITISH COLUMBIA

FAIRDRAWN TOPOGRAPHIC MAP

BTZ CLAIMS

SCALE 1000 0 1000 FEET / 800 0 800 METRES

1: 10,000

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FIG. 6