COMINCO LTD.

EXPLORATION
N.T.S. 82M/4

WESTERN DISTRICT
14 FEBRUARY 1978

ASSESSMENT REPORT

GEOLOGICAL REPORT ON STAKE 1 AND STAKE 2

MINERAL CLAIMS

KAMLOOPS MINING DIVISION,
BRITISH COLUMBIA

LATITUDE: 51°09'N

LONGITUDE: 119°52'W

Period of Work
June 30 - July 15, 1977

P.J. Wojdak, M.Sc.

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LIST OF PLATES

COMINCO LTD.

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STAKE ASSESSMENT REPORT

SUMMARY AND RECOMMENDATIONS

The Stake property is located 60 km northeast of Kamloops and is underlain by andesite and basalt, lesser felsic volcanic rocks and minor sedimentary strata of the Paleozoic Eagle Bay Formation. No significant showings occur on the property and no further work is recommended.

INTRODUCTION

The Stake claims are located 60 km due northeast of Kamloops, B.C. at 41°09'N, 119°52'W (Plate 1). It is reached by 25 km of gravel road from Highway 5, 50 km north of Kamloops. The claims are situated on the north side of Sinmax Creek at the point where it is joined by Johnson Creek. The poorly maintained Johnson Creek road offers easy access to most of the property. There is abundant outcrop on the steep northern side of Sinmax valley and along the deeply incised Johnson Creek Valley, but outcrop is sparse on the plateau in the northern part of the claim block.

The Stake property is adjacent the Homestake property where silver-lead-zinc-barite mineralization is known. There is no record of previous exploration of the Stake claims. The 1977 program consisted of geological mapping at 1:20,000 scale, using an enlargement of published 1:50,000 topographic map (82M/4W) and 1:20,000 scale air photographs for control. Field work was carried out between June 30 - July 2 and July 14-15, 1977. Analytic work reported includes six silt samples and four rock samples.

OWNERSHIP

The Stake property consists of two 100% Cominco owned claims within the Kamloops Mining Division as follows:

Claim	Legal Corner Post	Units	Date Recorded
Stake 1	42511	9	May 10, 1977
Stake 2	42512	9	May 10, 1977

REGIONAL SETTING

The Stake property is underlain by Paleozoic Eagle Bay Formation, a sequence about 100 km long by 25 km wide. It consists of basalt to rhyolite volcanic rocks, quartzite to argillaceous sedimentary rocks and limestone. These have been converted to phyllites and schists during greenschist facies metamorphism and two major phases of folding.

PROPERTY GEOLOGY (Plate 2)

(1) Lithologies

The major stratigraphic division on the Stake property is between homogenous dark green, weakly schistose basalt of

unit 1 and diverse, green to light grey, strongly schistose volcanic rocks of units 2 and 3. Near its base, unit 1 basalt is often lighter green in colour and more strongly foliated, thereby resembling underlying unit 3 volcanic rocks. In such cases the contact cannot be precisely located to within about 30m, but elsewhere it can be located to within a few metres.

Unit 1 basalt commonly exhibits good flow breccia texture with fragments to 10cm in size, a texture absent from underlying rocks. Generally the basalt is a fine grained chlorite schist but small feldspar phenocrysts can be discerned locally. Although a dark green colour is characteristic, one outcrop of purple and brick-red basalt suggest local subaerial oxidation at the time of eruption.

Felsic volcanic rocks of unit 2 include dacite and rhyolite. The dacites are pale grey, fissile sericitic schists. Locally they contain limonitic pseudomorphs of carbonate (probably ankerite). The rhyolites are white to pink and consist of aphanitic siliceous bands and lenses in a fissile quartz-sericite matrix. One outcrop, southeast of the Stake 1 legal corner post contains quartz eyes.

Andesite and basalt of unit 3 are featureless, green fine grained chlorite schists. Preservation of feldspar phenocrysts is unusual and they commonly contain abundant secondary calcite. One outcrop of volcanic breccia was noted consisting of felsic fragments in an andesite matrix. Alteration areas within unit 3 near Johnson Creek consist of cross-cutting, light coloured zones in andesite. They contain disseminated pyrite and some calcite-quartz veins.

Thin sedimentary bands are intercalated with the volcanic strata of units 1-3, and several of them are shown in Plate 2. Most commonly they consist of black argillite or alternating silty and argillaceous beds, the latter typical of distal turbidites. One sedimentary interbed is a conglomerate with quartzose, argillaceous and mafic volcanic clasts (in order of abundance) to 2 cm in size.

The major element composition of 11 volcanic rocks from the Stake property were determined at Cominco's Exploration Research Laboratory. Analyses were by standard X-ray fluoresence techniques and are presented in Table 1. Representation is somewhat biased towards the felsic volcanic members.

(2) Structure

Strata on the property strike at 090° and, on average, dip 40° north. Although regional evidence indicates intense folding within the Eagle Bay Formation, no fold structures were recognized on the Stake property.

(3) Mineralization and Geochemistry (Plate 3)

All analytical work was performed at Cominco's Exploration Research Laboratory, Vancouver. Silt samples were dried and the -80 mesh fraction analyzed for Cu, Pb and Zn by hot nitric acid digestion and atomic absorption techniques. Barium was determined by X-ray fluoresence. Rock samples were crushed and Cu, Pb, Zn and Ag analyses employed hot

acid digestion and atomic absorption. Gold analysis was by aqua regia digestion, di-isobutylketone solvent extraction followed by atomic absorption. Mercury analysis was by nitric acid digestion, cold vapour evolution and atomic absorption.

The only showing on the property is a quartz vein on the east bank of Johnson Creek mineralized with galena and sphalerite. A grab sample contains 0.7% Pb, 0.4% Zn. Pyritic rocks from alteration zones in unit 3, and a thin pyritic bed at the east end of unit 2b, have geochemically low metal content (listed on Plate 3). Stream silt samples from Alex Creek, Johnson Creek and a small creek on Stake 1 returned background values for Cu, Pb, Zn, and Ba. The latter stream is unusual in that the sediment is a white calcareous precipitate which cements gravel and organic material.

CONCLUSIONS

Mafic volcanic rocks predominate on the Stake property. There is no evidence of economic mineralization and no further work is recommended.

Report by: P.J. Wojdak,
Geologist

Approved for Release by: G. Harden, Manager
West. Dist. Expl.

PJW/gk

Attachments

TABLE 1
Chemical Composition of Rocks
From the Stake Claims

LOCATION NUMBER ON PLATE 3	1	2	3	4	5	6	7	8	9	10	11
Map unit	1	2a	2b	2b	2b	2b	2**	3	3	3	3
SiO_2	53.12	70.93	73.57	60.86	89.23	59.47	63.96	53.77	50.09	58.14	68.25
TiO_2	0.73	0.61	0.27	0.94	0.31	0.48	0.40	0.85	0.88	0.97	0.52
Al_2O_3	17.25	16.71	13.84	16.74	4.98	15.96	16.98	14.53	14.50	18.33	14.90
Fe_2O_3*	7.33	2.14	1.76	3.51	1.98	3.89	2.99	7.22	6.53	6.66	4.88
MgO	4.44	0.18	0.68	1.44	0.20	1.80	0.91	2.97	3.59	2.48	1.23
CaO	3.31	0.10	1.98	4.28	0.90	4.18	1.81	6.91	8.28	2.68	2.34
Na_2O	3.94	5.11	2.08	4.46	0.14	4.77	6.67	2.39	3.02	2.31	3.52
K_2O	3.25	3.00	3.21	2.74	1.28	2.17	1.45	1.76	2.79	4.27	1.60
Loss on ignition	6.65	1.72	3.69	6.58	2.10	6.87	3.88	9.76	12.21	4.04	4.31
TOTAL	100.02	100.50	101.08	101.55	101.12	99.59	99.05	100.16	101.89	99.88	101.55

* total Fe as Fe_2O_3

** narrow lens of unit 2 within unit 3

Field rock names: 1 basalt; 2 dacite; 3 rhyolite; 4 dacite; 5 chert; 6 rhyolite; 7 dacite; 8 andesite; 9 andesite; 10 andesite; 11 dacite

APPENDIX A

EXHIBIT "A"

STATEMENT OF EXPENDITURES
ON STAKE 1 AND STAKE 2 CLAIMS FOR 1977

Geology:		
P.J. Wojdak	- June 30 - July 2, July 14, 15; 5 days @ $116/day	$ 580.00
F.D. Gill	- July 14; 1 day @ $150/day	150.00
A. Glatiotis	- June 30 - July 2; 3 days @ $75/day	225.00
Geochemistry:		
6 silt samples; CuPbZn @ $2.35/sample		14.10
2 silt samples; Ba @ $2.00/sample		4.00
3 rock samples; CuPbZnHg @ $6.00/sample		18.00
1 rock sample; CuPbZnAgAu		6.50
11 rocks analyzed for 8 major elements @ $12/sample		96.00
Accomodation:		
Cabin rent at Agate Bay Resort: 1 week		150.00
Food:		
9 man days @ $12/day		108.00
Transportation:		
7 days truck rental @ $22/day		154.00
Supplies:		25.00
Report Preparation and drafting:		
P.J. Wojdak	- 2 1/2 days @ $87/day	217.50
	TOTAL EXPENDITURES	$1,748.10

Signed: P.J. Wojdak

P.J. Wojdak, M.Sc.

APPENDIX B

IN THE MATTER OF THE

B.C. MINERAL ACT

AND

IN THE MATTER OF A GEOLOGICAL

PROGRAM CARRIED OUT ON THE

STAKE 1 AND STAKE 2 MINERAL CLAIMS

Located in the Kamloops Mining Division

of the Province of British Columbia

More Particularly N.T.S. 82 M/4

A F F I D A V I T

I, PAUL J. WOJDAK OF THE MUNICIPALITY OF DELTA IN THE PROVINCE OF BRITISH COLUMBIA, MAKE OATH AND SAY:

1. THAT I AM EMPLOYED AS A GEOLOGIST BY COMINCO LTD., AND AS SUCH HAVE A PERSONAL KNOWLEDGE OF THE FACTS TO WHICH I HEREINAFTER DEPOSE:

2. THAT ANNEXED HERETO AND MARKED AS "EXHIBIT A" TO THIS MY AFFIDAVIT IS A TRUE COPY OF EXPENDITURES ON A GEOLOGICAL, PROGRAM CARRIED OUT ON THE STAKE 1 AND STAKE 2 MINERAL CLAIMS.

3. THAT THE SAID EXPENDITURES WERE INCURRED BETWEEN THE THIRTIETH DAY OF JUNE AND THE FIFTEENTH DAY OF JULY 1977 FOR THE PURPOSE OF MINERAL EXPLORATION ON THE ABOVE NOTED CLAIMS.

P.J. Wojdak, M.Sc.

APPENDIX C

COMINCO LTD.

EXPLORATION WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

I, PAUL J. WOJDAK, OF THE MUNICIPALITY OF DELTA, BRITISH COLUMBIA, HEREBY CERTIFY:

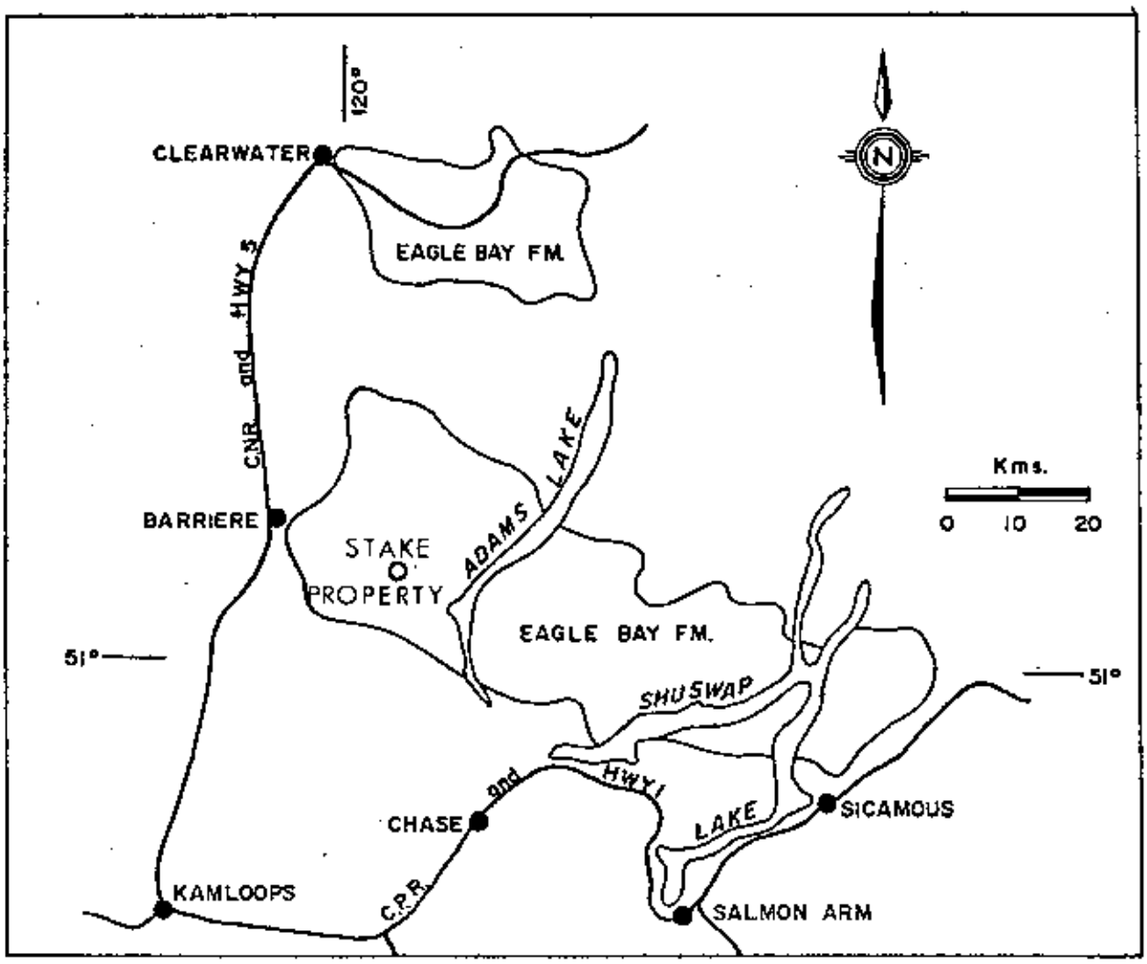
1. THAT I AM A GEOLOGIST RESIDING AT 11405-85 AVENUE, DELTA, BRITISH COLUMBIA WITH A BUSINESS ADDRESS AT 2200-200 GRANVILLE SQUARE, VANCOUVER, BRITISH COLUMBIA.

2. THAT I GRADUATED WITH A B.Sc. IN GEOLOGY AND CHEMISTRY FROM McMASTER UNIVERSITY, HAMILTON, ONTARIO IN 1971 AND WITH A M.Sc. IN GEOLOGY FROM THE UNIVERSITY OF BRITISH COLUMBIA IN 1974.

3. THAT I HAVE PRACTISED GEOLOGY WITH COMINCO LTD. FROM 1974 TO 1978.

DATED this 16 day of February 1978 at Vancouver, British Columbia.

Signed: P.J. Wojdak.
P.J. Wojdak, M.Sc.

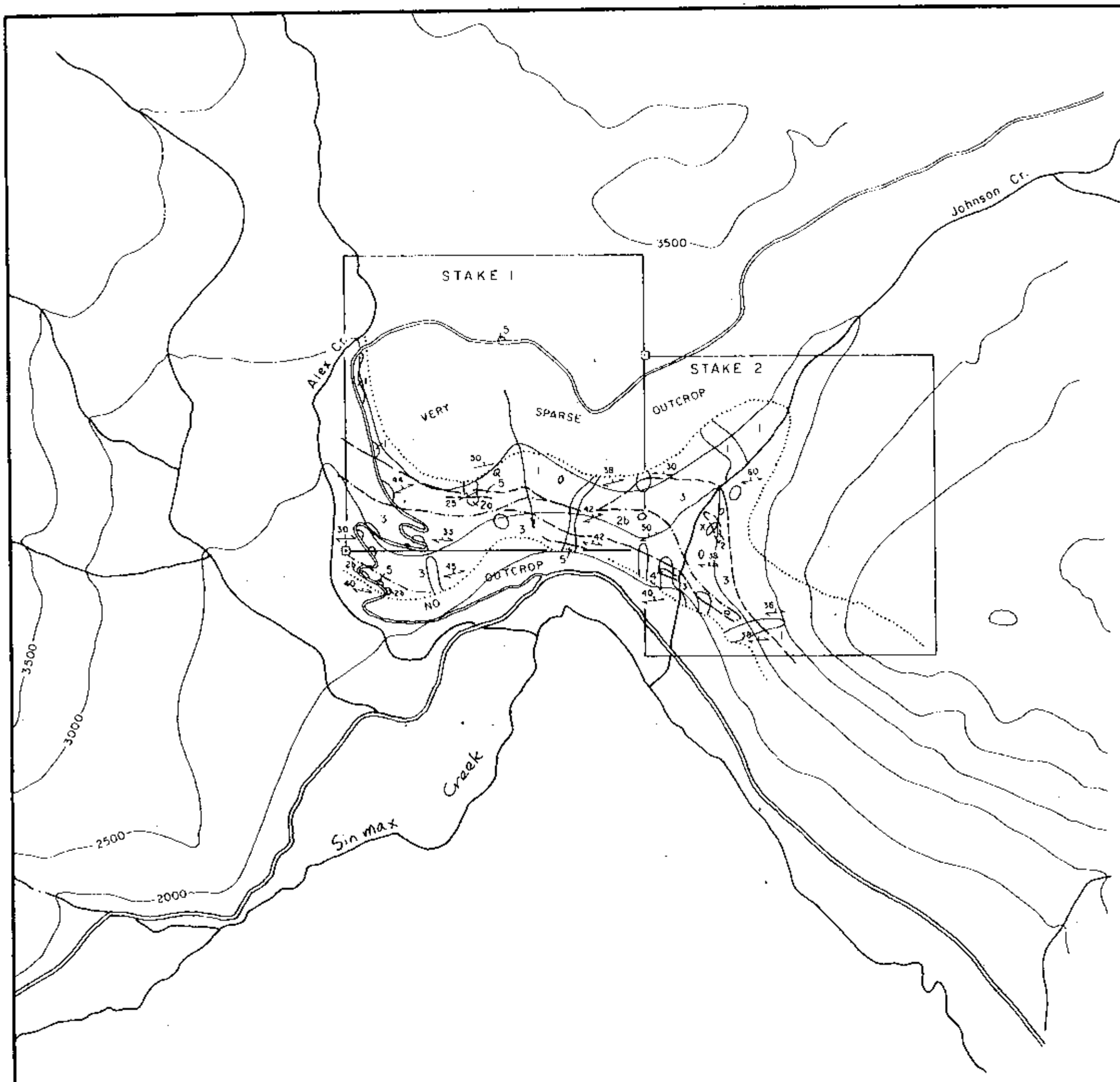


Drawn by: PJW		Traced by:	
Revised by	Date	Revised by	Date

STAKE LOCATION MAP

Scale: 1 : 1,000,000 | Date: JAN. 1978 | Plate: 1

210 0610



LEGEND

- 1 — Basalt; foliated to massive dark green flows and flow breccia, minor argillite interbeds
- 2a / 2b — Felsic volcanic rock, 2a Dacite; 2b Dacite and "cherty" rhyolite
- 3 — Andesite and basalt; green fissile
- 4 — Conglomerate
- 5 — Black argillite, siltstone

SYMBOLS

- x — Quartz vein with galena, trace chalcopyrite, sphalerite
- 25 — Bedding
- 50 — Foliation
- Outcrop examined
- Geological contact, defined, approximate, assumed
- Legal claim post

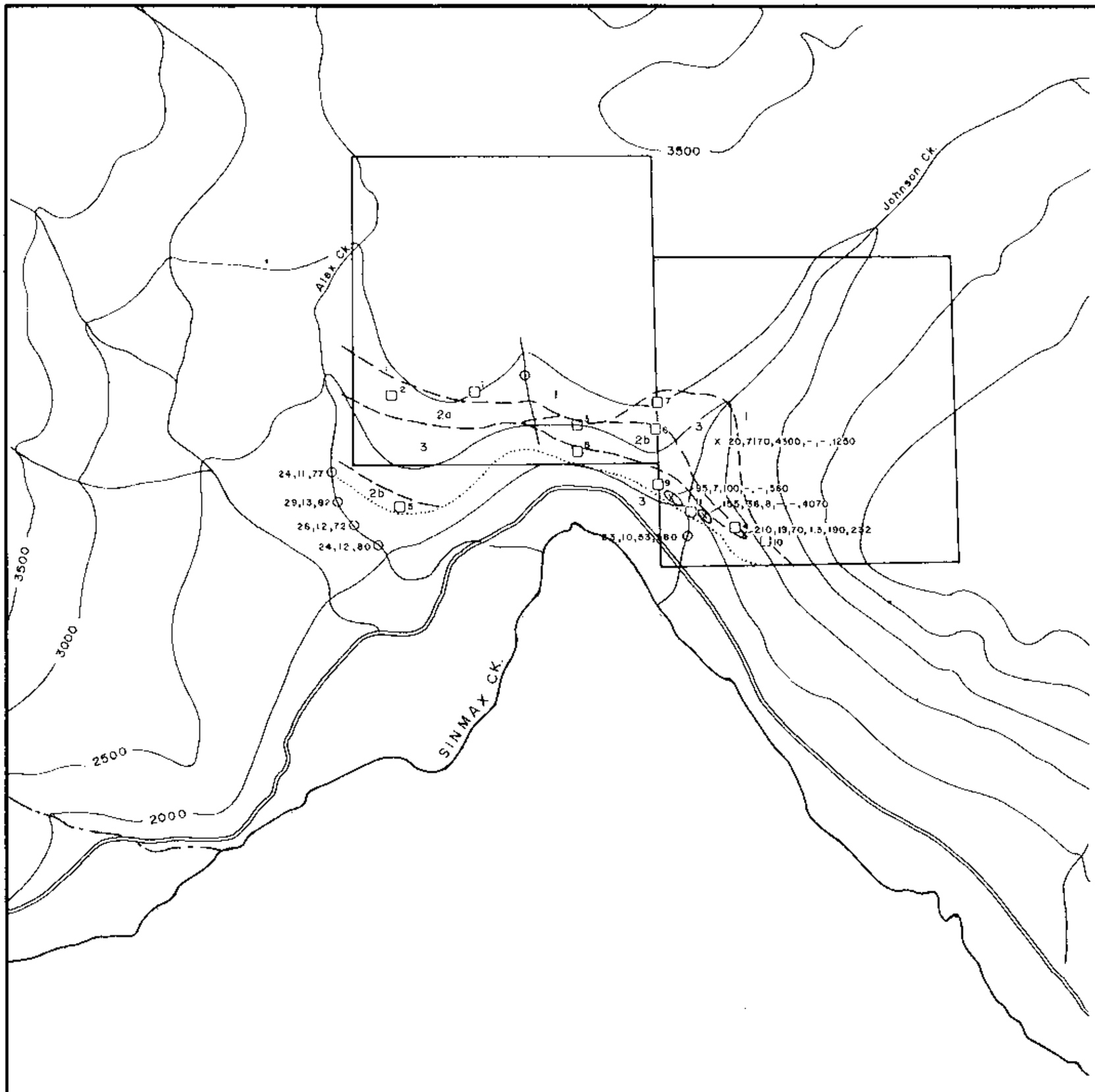
STAKE PROPERTY

Cominco 82 M/4

GEOLOGY

Drawn by: PJW	Traced by:
Revised by / Date	Revised by / Date

Scale: 1 : 20,000 | Date: FEB., 1978 | Plate: 2.



LEGEND

- Alteration zone; disseminated pyrite.
- Base of outcrop.
- 1 — Basalt.
- 2a / 2b — 2a Dacite 2b Ducite and cherty rhyolite.
- 3 — Andesite and basalt.

GEOCHEMISTRY

- O — Stream sediment; ppm Cu, Pb, Zn, Ba.
- x — Rock sample; ppm Cu, Pb, Zn, Ag, ppb Au, Hg
- □s — Major element analysis, c.f. TABLE I.

PJW

STAKE PROPERTY

Dominoo

Drawn by: PJW		Traced by: FJF	
Revised by	Date	Revised by	Date

GEOCHEMISTRY

Scale: 1:20,000 | Date: January 1978 | Plate: 3