85-664-13968

WOLF CLAIMS

Entiako Lake, B.C.

93 F 3 W

GEOLOGY, GEOCHEMISTRY & TRENCHING

1984

R. M. Cann

December 1984

Claims	Units	Record No.
Wolf	20	5565
Wolf 2	9	5566
Wolf 3	12	5567
Wolf 4	12	6675
Wolf 5	20	6676
Wolf 6	8	6677
Wolf 7	15	6678
Wolf 8	12	6679
Wolf 9	20	6680
Wolf 10	20	6681

NTS: 93F-3W

Latitude: 53° 12.5'N

Longtitude: 125° 28'W

Operator/Owner

Rio Algom Exploration Inc.
520-800 W. Pender Street
Vancouver, B.C.
V6C 2V6

Omineca Mining Division

WOLF CLAIMS

Entiako Lake, B.C.

93 F 3 W

GEOLOGY, GEOCHEMISTRY & TRENCHING

1984

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SUMMARY

The Wolf claims, located 115km south-southeast of Burns Lake, were staked in 1983 as the result of an anomalous Ag value in lake sediment. Soil and rock sampling in 1983 indicated an epithermal environment within Tertiary Ootsa Lake rhyolites and identified several silicifed outcrops which are anomalous in Au and Ag, including one which returned a value of 9.7 g/t Au.

Field work in 1984 was aimed at defining known zones and testing additional overburden covered areas. Work consisted of geological mapping, soil sampling over extensions on two of the three grids, chip sampling of silicified zones and trenching a small area of one zone known as the Ridge Zone. Seven additional claims were staked in September to cover geologically similar areas and to protect the original claims.

The Ridge Zone is a north-northeast trenching silicified zone containing the highest grade Au and Ag mineralization discovered to date. Mapping and chip sampling suggests the zone extends for 200m before disappearing beneath overburden to the north. Trenching of the most northerly exposure returned values up to 42.21 g/t Ag and 8.49 g/t Au over 7.5m in rhyolite which has been subjected to multiple stages of intense silicification and brecciation.

Anomalous Au and Ag values occur in other areas known as the Chopper Pad and Lookout Zones, however, work to date is inadequate to identify distinct mineralized zones. Most soil anomalies clearly originate from mineralization in known silicified areas, however, several unexplained Ag in soil anomalies occur on all three grids. In 1985 the Ridge Zone should be tested by diamond drilling and trenching, while the Chopper Pad Zone should be tested by additional chip sampling. Unexplained soil anomalies require investigation by prospecting, rock sampling, and more detailed geological mapping. A program of soil sampling, prospecting, mapping and possibly geophysical work is recommended for the new claims.

WOLF CLAIMS
Entiako Lake, B.C.
93 F 3 W
GEOLOGY, GEOCHEMISTRY & TRENCHING
1984

1. INTRODUCTION

1.1 GENERAL

This report describes the results of soil and rock geochemical sampling, geological mapping and trenching conducted on the Wolf, Wolf 2 and Wolf 3 claims, south of Burns Lake, during the period 7-30 August, and 18-21 September, 1984. This work was done to follow-up Ag-As-Zn anomalies in soils and Ag-Au amonalies in rocks discovered in 1983 after original interest prompted by anomalous silver in a lake on the property. The presence of gold and silver with attractive forms of silicification in the volcanics of the Ootsa Lake Group suggested the occurrence of epithermal gold-silver mineralization.

This report concludes by recommending more work, including drilling.

1.2 LOCATION AND ACCESS

The claims are located in central British Columbia 115km south-southeast of Burns Lake, between Entiako Lake and

Johnny Lake (NTS: 93F/3W).

Access to the property is via float plane from Burns Lake to one of several nearby lakes with final access by helicopter. Alternatively, the closest road access is the Kluskus logging road from Vanderhoof which passes approximately 18km southeast of the property but is scheduled for extension as shown on the location map (DWG L6787).

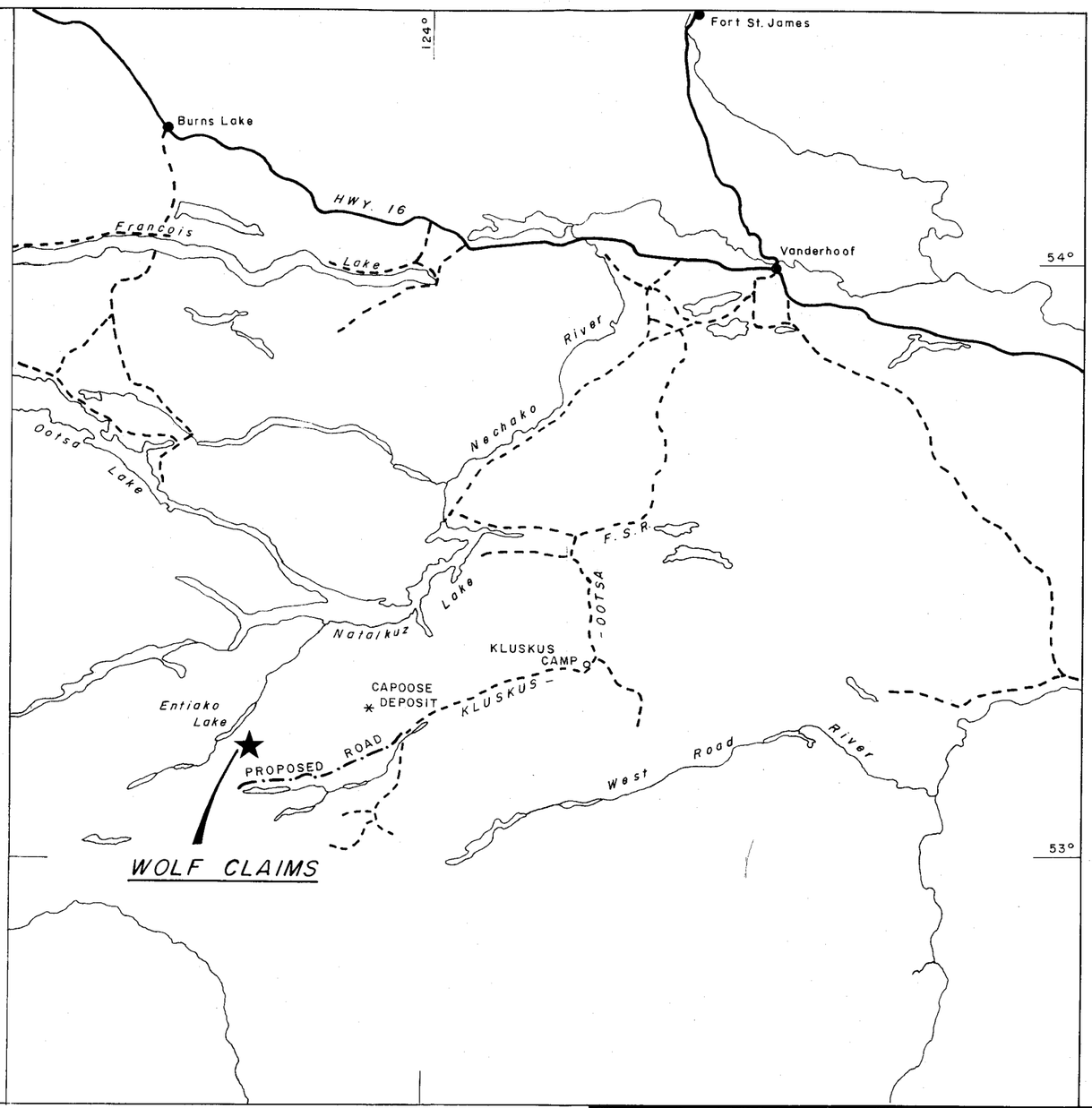
The Capoose silver deposit (Granges-Cominco) is located 22km east-northeast of Wolf on Fawnie Nose.

1.3 CLAIM STATUS

The Wolf property consists of ten claims totalling 148 units as listed below. Wolf 4 to Wolf 10 were staked subsequent to field work in 1984.

CLAIM	UNITS	RECORD NO.	STAKED	RECORDED
Wolf	20	5565	13 Jul/83	18 Jul/83
Wolf 2	9	5566	15 Jul/83	18 Jul/83
Wolf 3	12	5567	14 Jul/83	18 Jul/83
Wolf 4	12	6675	23 Sept/83	26 Sept/84
Wolf 5	20	6676	23 Sept/84	26 Sept/84
Wolf 6	8	6677	22 Sept/84	26 Sept/84
Wolf 7	15	6678	23 Sept/84	26 Sept./84
Wolf 8	12	6679	22 Sept/84	26 Sept/84
Wolf 9	20	6680	21 Sept/84	26 Sept/84
Wolf 10	20	6681	22 Sept/84	26 Sept/84

Claims are shown on the map L6788.



Secondary road

NTS 93 F/3

1 : 1 000 000

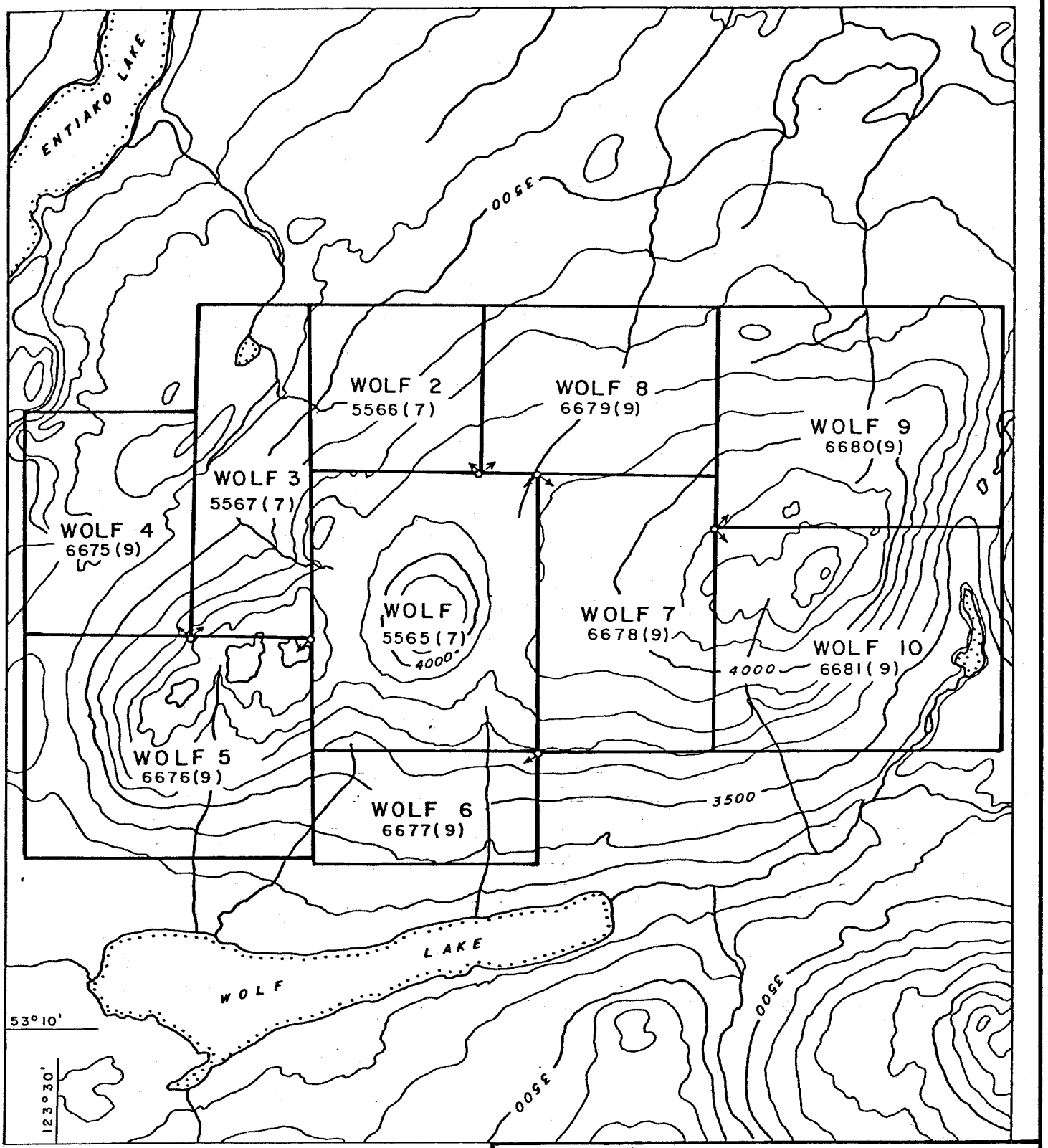
20 10 0 20 40 60 km

Rio Algom Exploration Inc.

WOLF CLAIMS

LOCATION MAP

DATE	DRAWN BY	DWG.
NOV. 1984.	R.M.C./J.S.	L 6787



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WOLF CLAIMS

CLAIM MAP

NTS 93F/3

SCALE 1:50,000

1000 500 0 1000 2000

DATE	DRAWN BY	DWG.
NOV. 1984.	R.M.C./ J.S.	L 6788

1.4 HISTORY

Early exploration in this area was hindered by remoteness and by extensive overburden, however, logging activity has opened much of the area in recent years.

Earliest systematic mineral exploration in this general area is believed to have been a regional lake sampling program conducted by Rio in 1970. No lakes on Wolf were sampled as the western edge of the survey area was approximately 5km east of the claims. In 1982 Rio conducted another lake sediment survey in central B.C. and sediment from the lake of the Wolf claims was found to be anomalous in Ag (2.1ppm), Zn, As and Mo. Subsequent follow-up in October 1982 resulted in the Wolf claims being staked and a programme of soil and rock geochemical sampling being conducted in September, 1983 on three grids over areas of silicified breccias and veining by chalcedonic quartz. The environment was considered one of potential for epithermal gold.

2. 1984 FIELD PROGRAMME

2.1 GENERAL

Field work in 1984 was based on recommendations contained in a report describing 1983 work, entitled Wolf Claims - Geochemistry, March 1984, by C. D. Spence, filed for assessment work. (No. 84-20-12158). These recommendations for additional soil sampling, geological mapping, chip sampling and trenching were aimed at locating or defining gold-silver mineralization indicated in 1983 in soils and in several outcrops including one that gave 9.7 g/t Au.

Field work during the periods August 7 to August 21, and September 18 to September 21, 1984, was conducted by 3 to 6 people under the supervision of temporary geologist L. Holmgren. From August 22 to August 30 part of a trenching programme was supervised by temporary geologist B. Laird.

The programme was under the overall supervision of R. M. Cann of Rio Algom Exploration Inc.

The following describes the work done and the results.

2.2 GEOLOGICAL MAPPING

Geological mapping was conducted on the Wolf, Wolf 2 and Wolf 3 claims at a scale of 1:5,000 using the three 1983

soil grids (DWG. G7646) for location control. Provincial government air photographs at an approximate scale of 1:20,000 were also used where necessary. Trenches blasted in 1984 were mapped at a scale of 1:200. Nineteen chip samples were collected during mapping and analysed for Au and Ag.

2.3 SOIL GEOCHEMISTRY

To further define 1983 soil sanomalies and to test additional overburden-covered areas 258 soil samples were collected from Grids 1 and 3. (see DWG. GC7646). On Grid 1, lines 2N, 3N, 4N and 5N were extended 400m to the west, and on Grid 3, lines 1S, 2S and 3S were extended 400m east and lines 0N, 1N and 2N were added (from 8E to 16E). These lines were surveyed in using hip-chain and compass with stations flagged at 20m intervals. B-horizon soil samples were taken along these lines at a 20m spacing, placed in Kraft sample bags and shipped to Acme Analytical Laboratories Ltd., in Vancouver for Au (AA) and Ag (ICP) analysis. Samples were also later analysed for Mo, Pb, Zn, As and Sb by ICP.

Results are listed in Appendix B and plotted on DWGS. GC-7640 to GC7645.

2.4 ROCK SAMPLING

Chip samples were collected in 4 areas on Grids 1, 2 and 3 to test previously identified silicified zones or areas of

quartz veining. These 118 samples were generally taken over a 3m length along east-west lines spaced 10 to 15m apart and may have comprised veins, silicified rock or unaltered rock alone or mixed.

Samples were geochemically analysed by AA for Au and by ICP for Ag at Acme Analytical Laboratories Ltd., in Vancouver. Eighteen samples were analysed for 30 elements by ICP and for Au by FA/AA.

Results are shown on the maps and given in Appendix C. Sample locations are given on DWGS. GC6789, GC6791, and GC-6793.

2.5 TRENCHING

Eight trenches totalling 52.2m in length were hand-blasted and mucked on Grid 3 to facilitate sampling and definition of a silicified and mineralized zone in a small outcrop within the Ridge Zone (DWGS. GC6795 & GC6796). Trenching was carried out during a period of 14 days by a two-man crew under contract from Van Alphen Exploration Services, Smithers, B.C. Trenches were chip sampled over sequential 1 to 1.5m lengths, or less if significant variation in mineralization was suspected and samples assayed for Au and Ag at Chemex Labs. Ltd., North Vancouver. Results are given in Appendix D.

3. SOIL GEOCHEMISTRY

3.1 GENERAL

Soil results and sample locations for Grids 1, 2 and 3 are shown on DWG. GC6740 to GC6745. No statistical study to determine threshold levels was carried out, however, by observation Ag values greater than 0.6ppm appear to be anomalous. Gold values do not form coherent anomalies but any value of 15ppb or greater is probably anomalous. For As the threshold value has been taken at 15ppm while, zinc which appears more variable, has been contoured at 150ppm for reference. Lead shows some correlation with Zn and As but cannot be meaningfully contoured.

3.2 GRID 1 RESULTS

Values for Ag and Au are shown on DWG. GC7640 while values for As, Pb and Zn are shown on DWG. GC7641. Au is uniformly low (5ppb) except for several scattered single sample anomalies. Ag forms a more coherent pattern, forming a large anomaly (0.6-2.7ppm) along the baseline and spreading down-slope from a silicified zone known as the Chopper Pad Zone. Small multi-station Ag anomalies occur 200m north-northeast and 200m west of the zone. Highest Ag value is 3.8ppm and is located in the extreme southwest corner of the grid.

This sample is also highly anomalous for As, Pb and Zn and should be investigated further.

Contouring of high As and Zn values produces anomalies which correlate well with the Ag anomalies but are generally broader. In the largest anomaly (resulting from mineralization at the Chopper Pad Zone) Zn and As can be contoured separately showing that anomalous Zn values are dispersed 200 to 300m downslope from the zone while anomalous As values are restricted to 100m downslope.

3.3 GRID 2 RESULTS

No additional sampling was done on Grid 2, however, 1983 results are presented here for completeness (DWG. GC7642, GC-7643.

Au values are generally low (5ppb) but scattered higher values (10ppb-35ppb) generally show good correlation with higher Ag values. Contouring Ag at 0.6ppm shows six small anomalies, four of which (L800S, L400S, L300S, L200S/140W) correlate well with known siliceous zones. The remaining two anomalies (end of L500S and L00N to L200S) are unexplained at present. As and/or Zn values show an erratic spatial correlation with Ag anomalies. The main exception is the Ag anomaly on lines 300S, to 400S, which has no Zn or As associated with it. Zn anomalies are generally broad, fuzzy

and indefinite.

3.4 GRID 3 RESULTS

Results of 1983 and 1984 sampling are shown on DWGS. GC7644 and GC7645. Au values are typically flat but show scattered weakly anomalous contents (10-30ppb) in areas of higher Ag values. South of L100S, Ag anomalies show good correlation with known silicified zones. Scattered silver anomalies north of L100S have not been explained as yet because of thick overburden in this area.

As and/or Zn anomalies generally show good spatial correlation with those for Ag. Exceptions to this are the Ag anomalies north of L100S and that centred on L300S/11+80E and associated with Ridge Zone, all of which have no other anomalous metals?

4. ROCK SAMPLING AND TRENCHING

4.1 ROCK SAMPLING

4.1.1 Grid 1

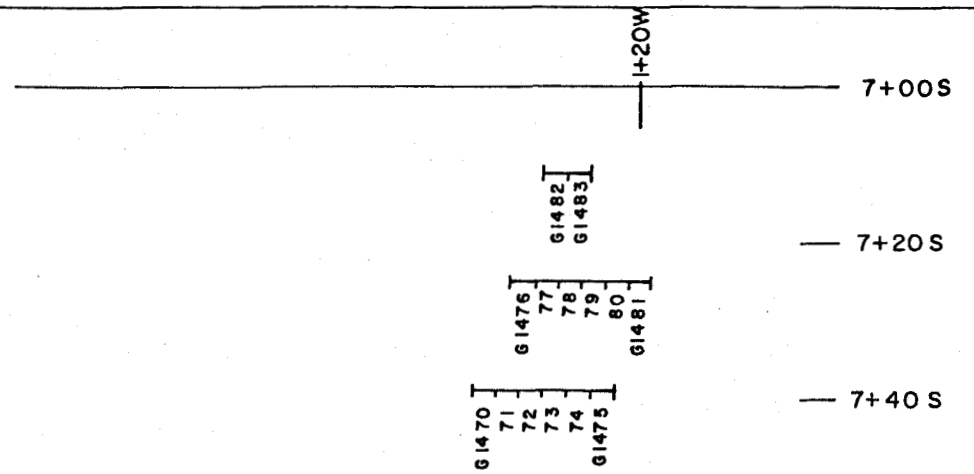
Two lines of chip samples were taken across on silicified area known as the Chopper Pad Zone (DWG. GC6793 and GC6794). The last two samples at the east end of line 2+75N are anomalies in Ag (2.2ppm and 2.0ppm) and the eastern most sample on line 2+60N is anomalous in Au (165ppb) and weakly anomalous in Ag (0.8ppm). These results together with limited rock sampling in 1983 (DWG. GC7640) suggest that the current sampling was done on the western edge of the main area of potential interest. Further investigation is needed.

4.1.1 Grid 2

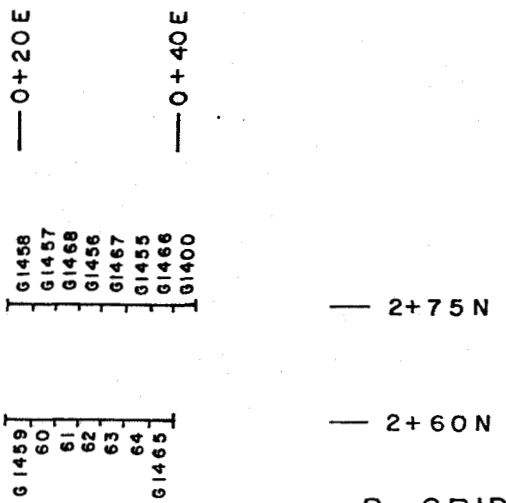
A small area of silicification between 7+00S and 7+40S was evaluated by detailed chip sampling. Results, as shown on DWG. GC6794, are background values only for both Au and Ag.

4.1.3 Grid 3

Detailed chip sampling was conducted in two broad areas known as the Ridge Zone and Lookout Zone (DWG. G7646). Results from sampling the Lookout Zone are shown on DWGS. GC - 6789 and GC6790. Although no distinct mineralized zones can



A. GRID 2



B. GRID 1 - CHOPPER PAD ZONE

SCALE 1:1000

20 10 0 20 40 Metres

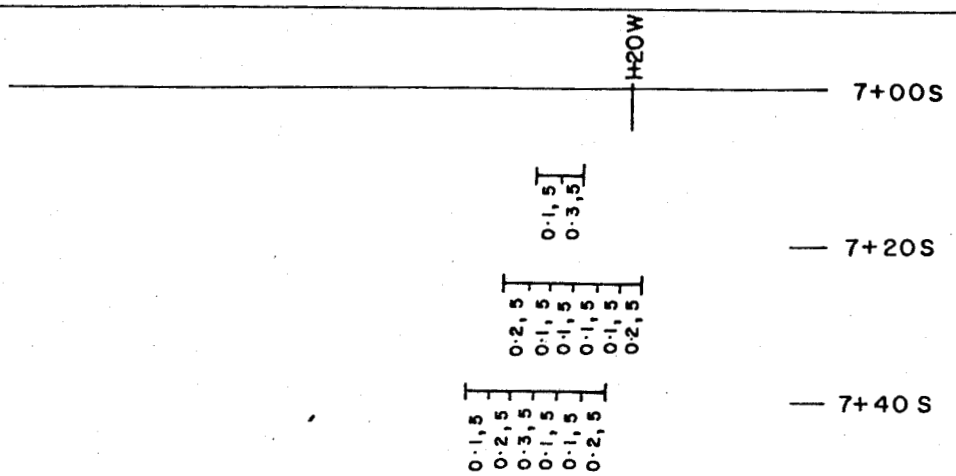
Rio Algom Exploration Inc.

WOLF CLAIMS

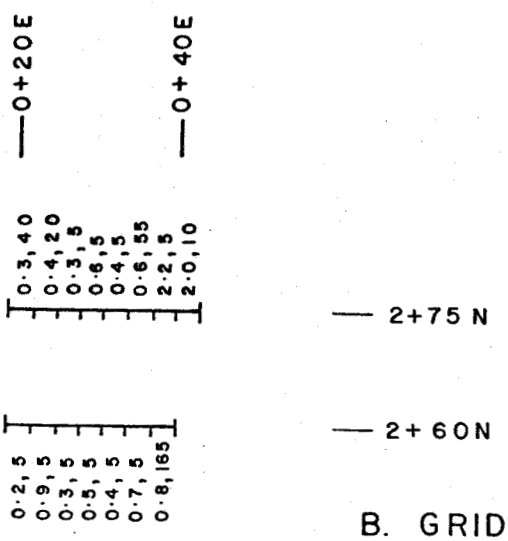
GRIDS 1 & 2

CHIP SAMPLE LOCATIONS

DATE	DRAWN BY	DWG.
DEC. 1984.	R.M.C. / J.S.	G.C. 6793



A. GRID 2



B. GRID 1 - CHOPPER PAD ZONE

LEGEND

0·2,5 — ppm Ag, ppb Au

SCALE 1:1000

200 100 0 200 400 Metres

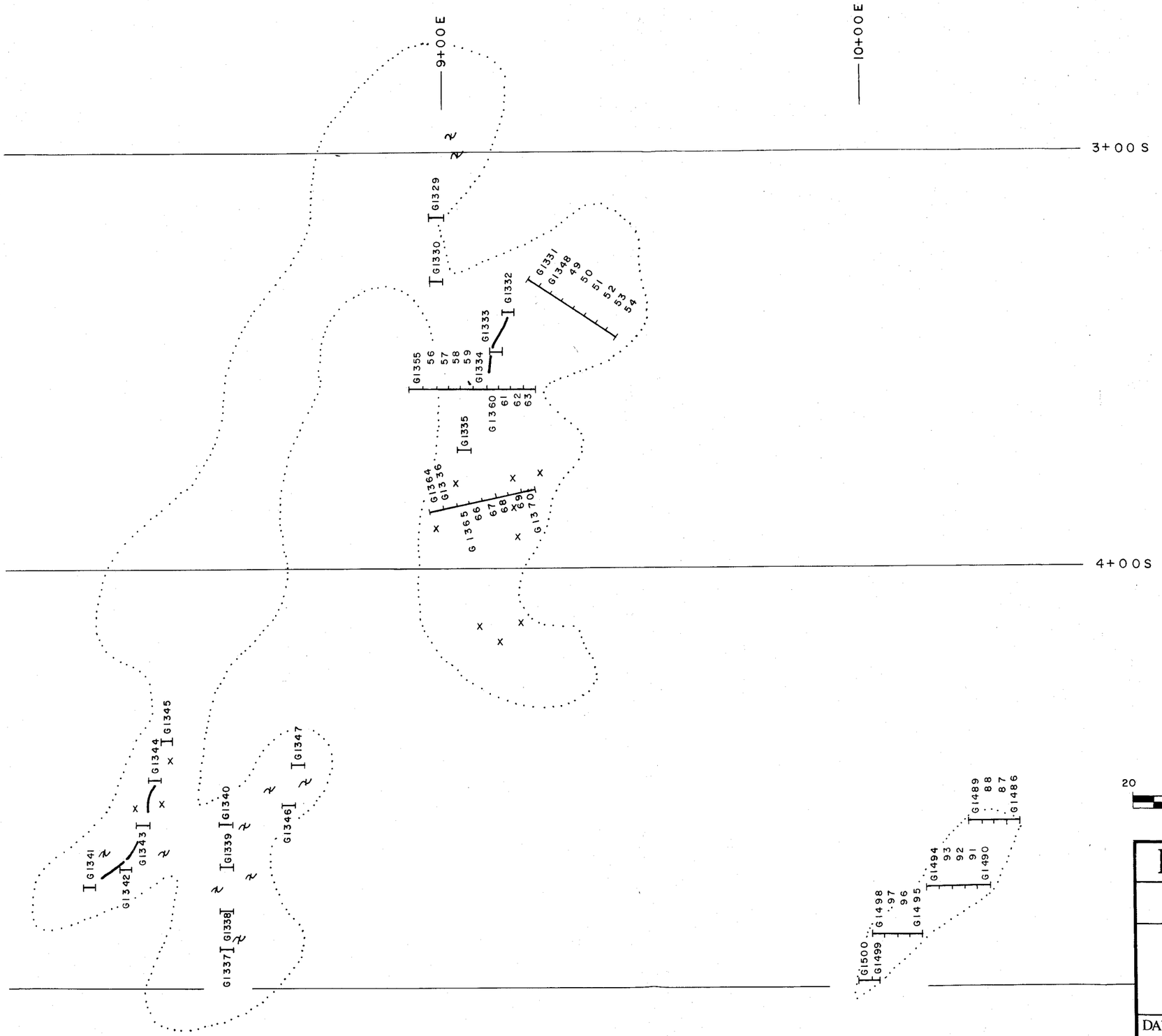
Rio Algom Exploration Inc.

WOLF CLAIMS

GRIDS 1 & 2

CHIP SAMPLE RESULTS - Ag, Au

DATE	DRAWN BY	DWG.
DEC. 1984.	R.M.C. / J.S.	G.C. 6794



LEGEND

- 1-2 m wide quartz vein
- x — Area of 1-3 cm random quartz veining
- ≈ — 30-60cm patch of quartz
- G 1355 — Chip sample number

SCALE 1:1000

20 10 0 20 40 60 Metres

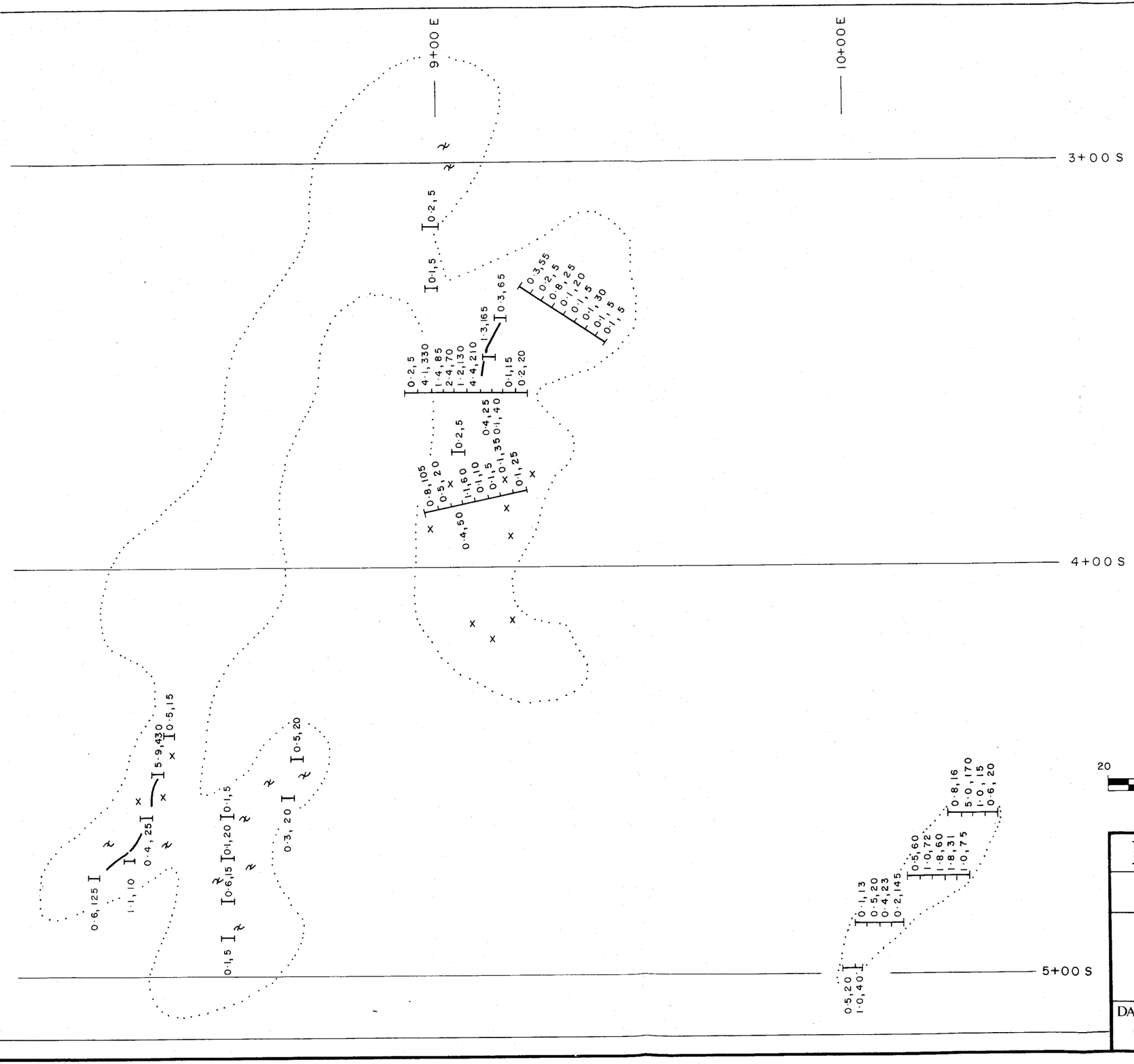
Rio Algom Exploration Inc.

WOLF CLAIMS

LOOKOUT ZONE (GRID 3)

CHIP SAMPLE LOCATIONS

DATE	DRAWN BY	DWG.
DEC. 1984.	R.M.C./ J.S.	G.C. 6789



LEGEND

- 1-2 m wide quartz vein
- x — Area of 1-3 cm random quartz veining
- 30-60 cm patch of quartz
- 0·4, 5 — ppm Ag, ppb Au

SCALE 1:1000

20 10 0 20 40 60 Metres

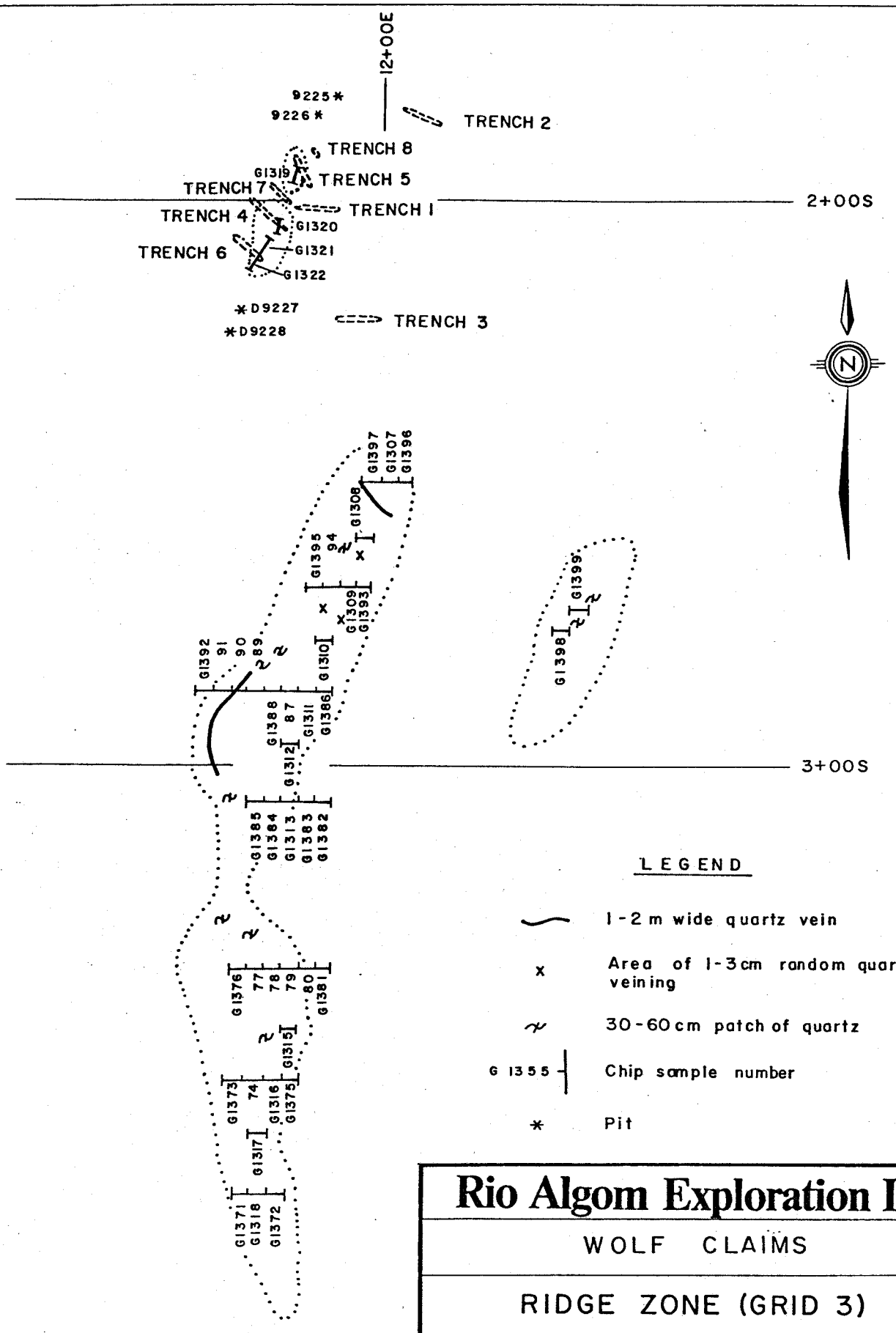
Rio Algom Exploration Inc.

WOLF CLAIMS

LOOKOUT ZONE (GRID 3)

CHIP SAMPLE RESULTS - Ag, Au

DATE	DRAWN BY	DWG.
DEC. 1984.	R.M.C. / J.S.	G.C. 6790



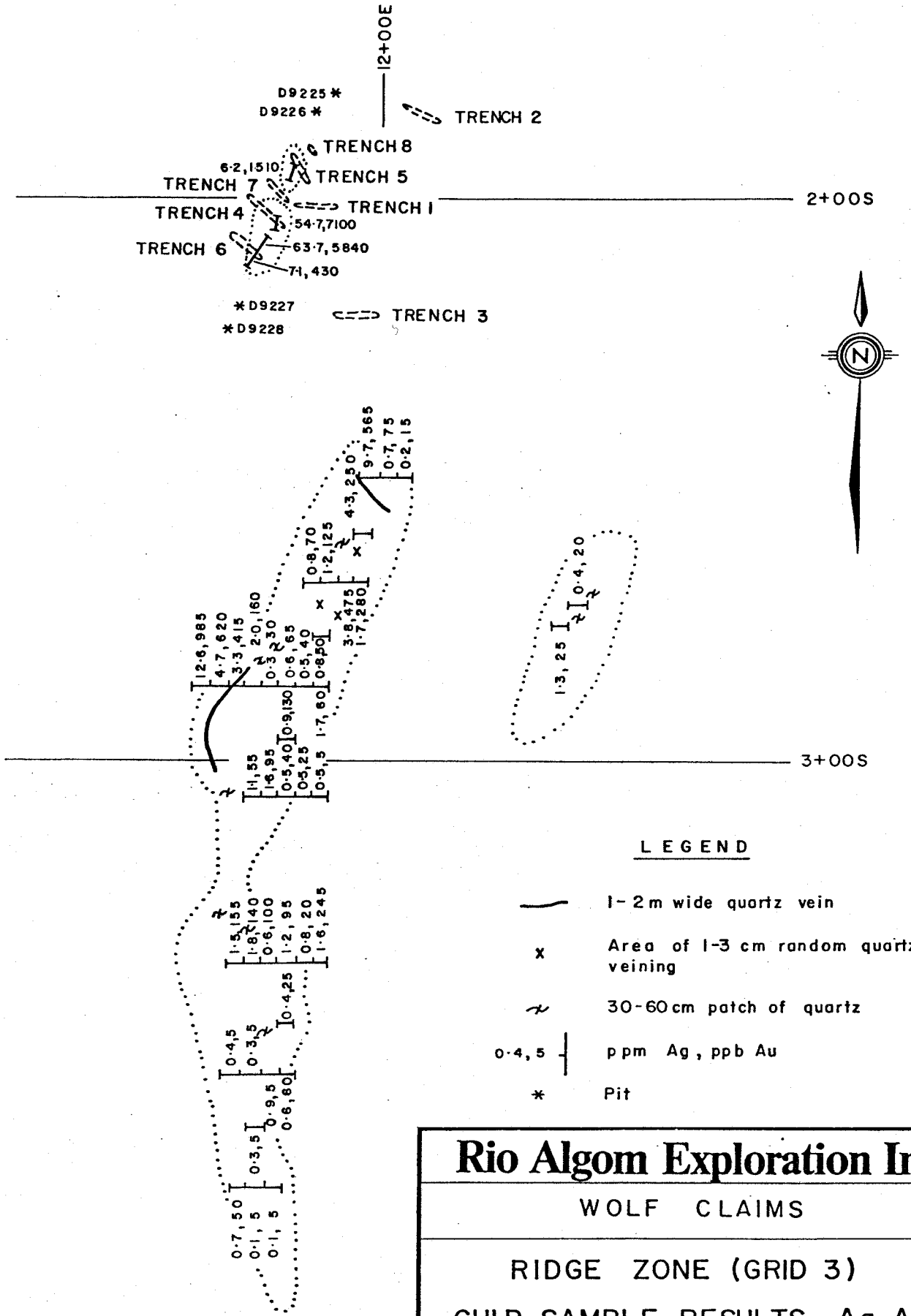
Rio Algom Exploration Inc.

WOLF CLAIMS

RIDGE ZONE (GRID 3)

CHIP SAMPLE LOCATIONS

DATE	DRAWN BY	DWG.
DEC. 1984.	R.M.C. / J.S.	G.C. 6791



Rio Algom Exploration Inc.

WOLF CLAIMS

RIDGE ZONE (GRID 3)

CHIP SAMPLE RESULTS - Ag, Au

DATE	DRAWN BY	DWG.
DEC. 1984.	R.M.C. / J.S.	G.C. 6792

be inferred, several areas contain anomalous Au and Ag. On L3+55S, five contiguous samples vary from 1.2ppm to 4.4ppm Ag and 70ppb to 330ppb Au. Sampling immediately north and south of this line did not indicate a similar zone. These lines however are located further east than the suspected NNE trend of a possible mineralized zone.

Highest values in the southwest corner of the Lookout Zone were in one sample which ran 5.9ppm Ag and 430ppb Au. In the southeast corner one sample ran 5.0ppm Ag and 170ppb Au. Coherent mineralized zones may be present in the Lookout Zone but could not be established by the current density of sampling.

Chip sampling of the Ridge Zone, excluding trench samples, is shown on DWG. GC6791 and GC6792. Although variable, Ag and Au values generally increase towards the west side of the main exposure, resulting in the westernmost sample running 12.6ppm Ag and 985ppb Au. Original chip sampling in 1984 on the northernmost outcrops which were later trenched, varied between 6.2ppm to 63.7ppm Ag and 430ppb to 7100ppb Au. A sample collected here in 1983 ran 9.7 g/t Au. Higher values correlate closely with increased chalcedonic and crystalline quartz veining and increased pervasive chalcedonic silicification in these outcrops and trenches.

4.2 TRENCHING

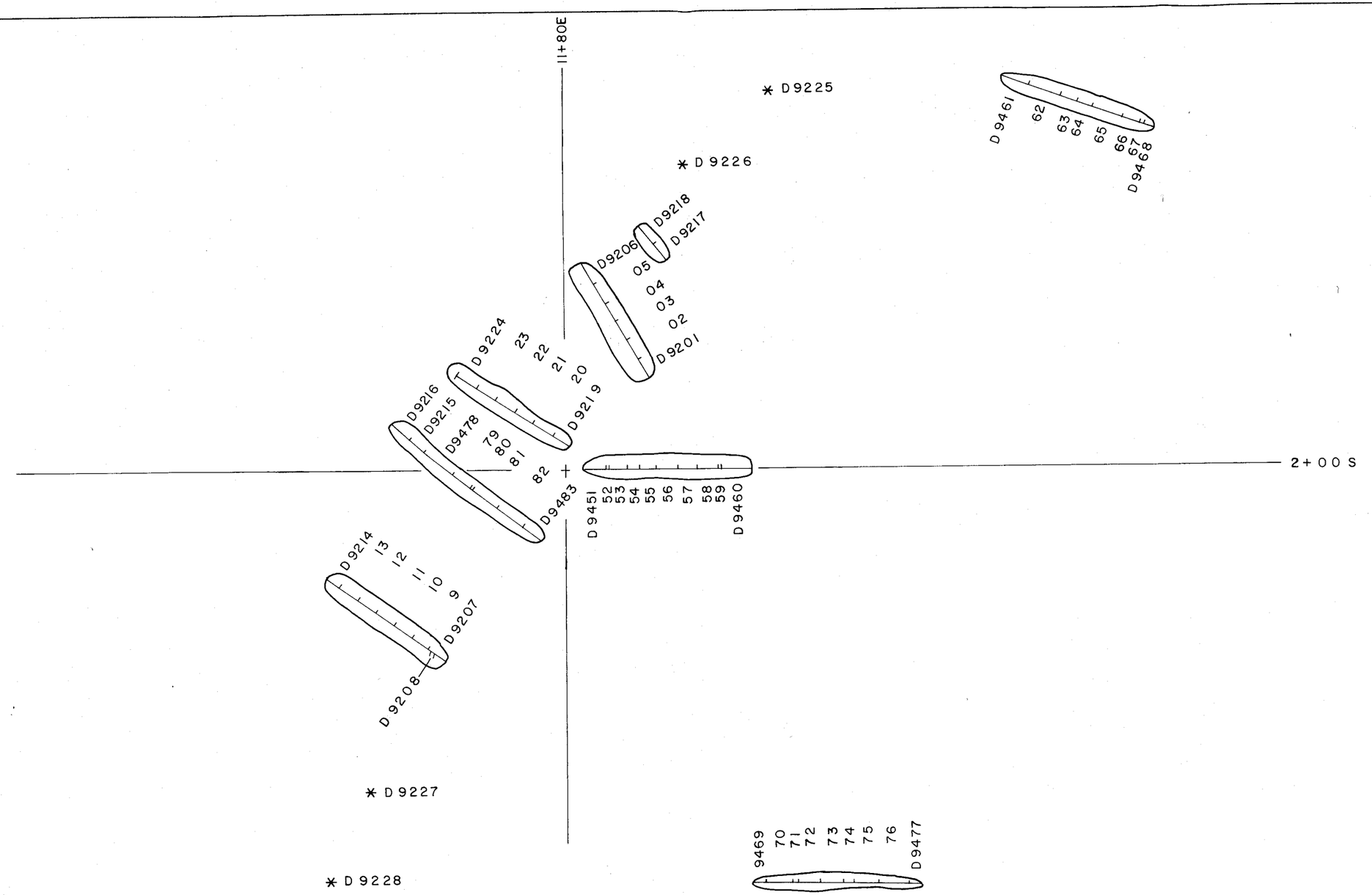
Trenching was carried out near L2+00S on the Ridge Zone to aid sampling and definition of the mineralized silicified zone indicated in samples G1319 to G1322 (DWG. GC6792). Details of the trenches with descriptions of the geology etc., are given in Appendix E. Gold-silver assay results from systematic trench sampling are shown on DWG. GC6796. The trenching was successful in providing better samples from the area of the silicified outcrops. Deepening overburden to the west and to the north prevented more extensive tracing of the zone but allowed small exploratory pits to be dug.

Trenches 2 and 3 are weakly mineralized and weakly silicified. The best Au was 0.24 g/t over 1.5m and the best Ag was 4.4 g/t over 1.0m.

Grades and silicification increase toward the west with areas of +10 g/t Ag corresponding well spatially with areas of +1 g/t Au. Within this broad lower grade mineralized zone however higher grade areas of Au and Ag do not correlate so well. An area of +50 g/t Ag (67.0 g/t to 91.2 g/t) is generally located at the east halves of Trench 4 and Trench 7, whereas, the main area of +8 g/t Au is located in the central area of Trench 4.

Highest assays are from a small pit north of the trenches

(9226) which ran 164.0 g/t Ag and 17.10 g/t Au, in rock similar to that exposed in Trench 4.



LEGEND

* Pit

SCALE 1:200

5 0 5 10 10 Metres

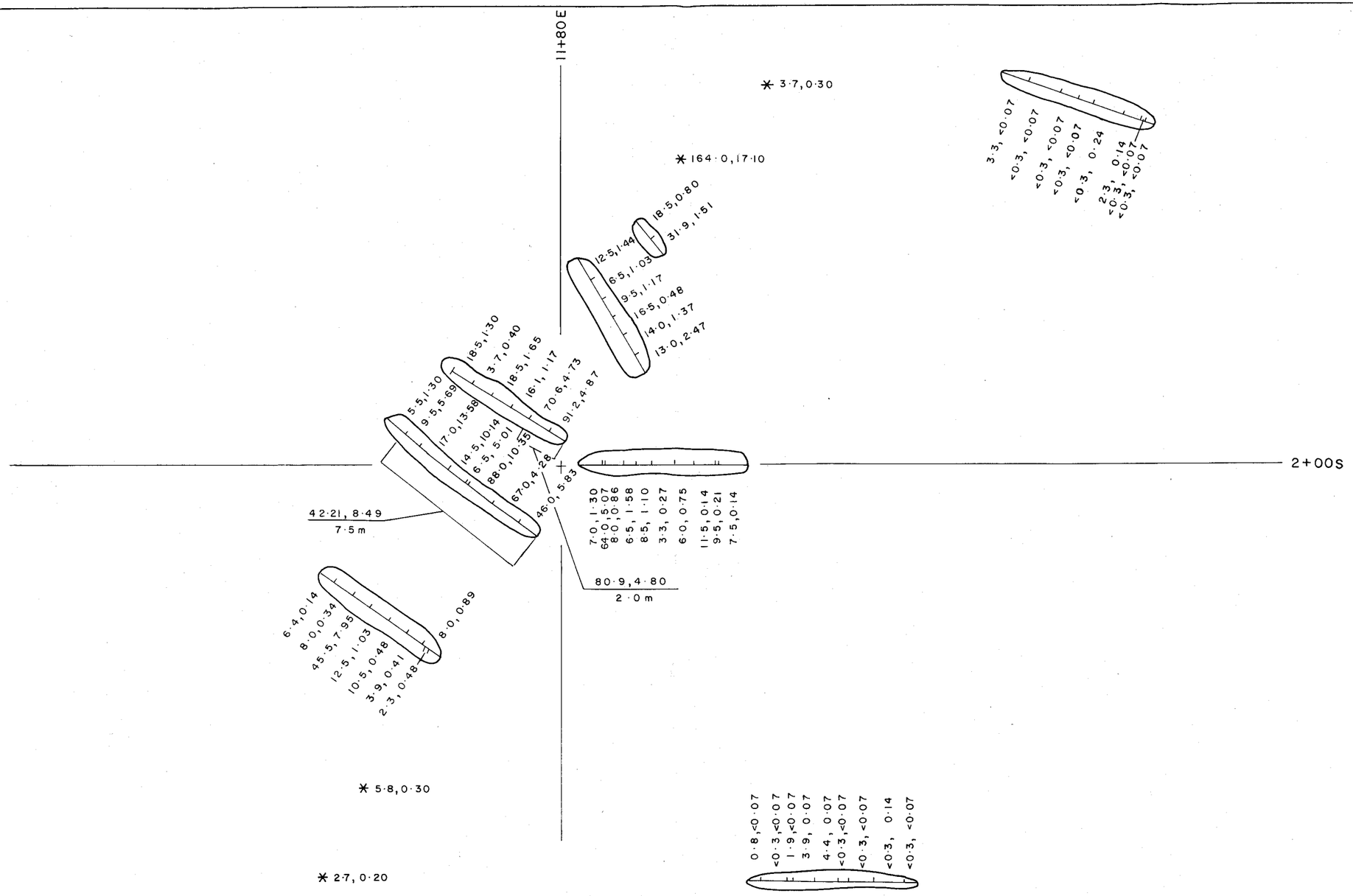
Rio Algom Exploration Inc.

WOLF CLAIMS

RIDGE ZONE (GRID 3)

TRENCH SAMPLE LOCATIONS

DATE	DRAWN BY	DWG.
DEC. 1984.	R.M.C. / J.S.	G.C. 6795



LEGEND

✳ Pit

0·3, 0·07 Ag g/t, Au g/t

SCALE 1:200

5 0 5 10 15 Metres

Rio Algom Exploration Inc.

WOLF CLAIMS

RIDGE ZONE (GRID 3)

TRENCH ASSAYS- Ag, Au (g/t)

DATE	DRAWN BY	DWG.
DEC. 1984.	R.M.C./ J.S.	G.C. 6796

5. GEOLOGY

5.1 REGIONAL GEOLOGY

Geology of this area has most recently been described by Tipper, Map 1131A (1:253,440) in GSC Memoir 324. Oldest rocks in the vicinity of the Wolf claims are described by Tipper as Takla Group volcanic rocks. However, on GSC Map 1424A (1:1,000,000) these rocks have been reclassified as Lower Jurassic Hazelton Group. To the east, this unit is overlain by Middle Jurassic Hazelton Group andesitic flows, breccias and sediments. This unit hosts the Capoose silver deposit. Cretaceous or Tertiary granitic plutons are common within the Hazelton Group.

The Wolf claims are located in a 10km by 40km northeast-trending belt of Lower Tertiary Ootsa Lake Group volcanics. The rocks in this belt are described as subaerial rhyolite to dacite flows and volcaniclastics with minor andesite, basalt and conglomerate. A lower andesitic unit of the Ootsa Lake Group has been described but does not outcrop in the vicinity of the Wolf Claims.

There are no records of mineralization in the Tertiary rocks on the claims. The nearest showings, in older rocks are at least 15km away and are mostly of porphyry-type.

5.2 PROPERTY GEOLOGY

5.2.1 Lithology

The Wolf claims are underlain by a sequence of felsic volcaniclastic and flow units, and probably plugs and/or domes. (see DWG. G7646). Five general units have been mapped on the property and are described below without implying age relationships.

Unit 1

Unit 1 is a distinctive tan-coloured porphyritic rhyolite containing 15-20% tabular, euhedral orthoclase crystals, 5 to 10mm in length in an aphanitic groundmass.

Quartz phenocrysts form 2-3% of the rock and vary from 0.5 to 2mm in size. The coarse nature of the phenocrysts in this unit suggests that at least in part the unit may be intrusive. Silicification and pyrite occur locally within this unit, however, no significant Au or Ag values have been found.

Unit 2

Unit 2 is readily recognizable by its marroon, siliceous aphanitic matrix crowded with 1-2mm stubby orthoclase crystals (30-60%) and 1-2mm angular quartz grains (10%). The fragmentary nature of many of the crystals indicates the unit is a

crystal tuff. Unit 2 hosts the strongest alteration and mineralization found to-date (Lookout and Ridge Zones).

Unit 3

Unit 3 is a light grey to green, heterogenous lithic tuff consisting of 2 to 5mm angular lithic fragments together with quartz and feldspar crystals in an aphanitic groundmass. This unit is spatially restricted, only outcropping on Grid 2.

Unit 4

Unit 4 is a massive, cream-coloured, fine-grained to asphanitic ash tuff which locally contains several percent 1mm smokey quartz crystals. Silicification occurs locally within this unit.

Unit 5

Unit 5, which hosts the Chopper Pad Zone, is a pale maroon, tan or grey aphanitic or locally porphyritic rhyolite which commonly displays flow-banding, perlitic and spherulitic textures. The rock generally contains 5-10%, 0.5 to 1.0mm corroded quartz crystals and 5-10%, 1-3mm euhedral orthoclase crystals. In some areas the rock is clearly a flow in origin whereas elsewhere the matrix appears tuffaceous.

5.2.2 Structure

Attitudes have not been determined for any of the units. Flow-banding generally strikes east-west and dips moderately to steeply to the south. The dominant fracture trend is 030° with fractures dipping steeply west on Grid 3 or steeply east on Grid 2.

A north-trending fault is postulated southwest of Grid 2 based on displacement of units and topography. Faulting may occur along the major depression between Grids 2 and 3, however, no evidence exists at present and other explanations could readily explain the sharp changes in lithology between these grids.

5.2.3 Mineralization and Alteration

Gold-silver mineralization on the Wolf claims is associated with generally north to northeasterly-trending zones of milky white quartz as veins or as intense pervasive silicification. The latter is commonly associated with brecciation of the volcanic rocks and well developed chalcedonic quartz.

In vein-form quartz occurs on all three grids and is seen as veins up to 2m wide with sharp contacts against unaltered rock, This vein quartz may also occur as small areas of

random veining or as pods and patches up to 60cm. Quartz is white, sucrosic and may display fine chalcedonic banding, bladed textures and drusy quartz in 1-2cm cavities. Distinct types of vein quartz may be recognized by detailed work.

More locally, and specifically in the Ridge and Chopper Pad Zones, a more pervasive silicification is imposed on massive or brecciated volcanic rocks. These zones may in part be continuous with, imposed on or adjacent to veins. Within these areas volcanic rocks are more or less silicified, ranging from a weakly developed fine veining by chalcedonic quartz to an almost massive replacement of rock by fine silica with only relict shadows of former minerals etc., remaining. Silicification is largely from fractures filled with or in breccias cemented by chalcedonic quartz. In intensely silicified areas open drusy cavities are lined by quartz crystals and bladed textures are developed.

Silicification with weak development of sericite and clay minerals imparts a tan colour to affected areas.

Host rocks of the Ridge Zone are dominantly marroon dacitic crystal tuffs (Unit 2) though felsic tuffs and monolithic breccias are evident in hand specimens from Trenches 1, 4, 6 and 7. As in other zones, the Ridge Zone is a north

to northeast-trending zone of intense silicification and veining. The zone is open to the north, west and south. As currently exposed the intensely silicified zone is at least 8m wide (in trench 4). Eastward from trench 4 it becomes less intense until marked only by small veinlets of silica in the eastern end of trenches 2 and 3. To the south, silicification on the west side of the long outcrop (DWG. GC6792), the quartz veining and rock sampling values imply a possible continuation of the zone for 200m.

The highest grades of gold and silver (eg. trench 4-7.5m at 42.2 g/t Ag, 8.49 g/t Au, Trench 7-2.0m at 80.9 g/t Ag, 4.80 g/t Au) are developed in areas of intense multistage silicification. At least six periods of silicification can be identified in hand specimen and are described in Table 1. These are tentative and in the case of Stage 4 probably includes more than the one episode of silicification.

Sericitic alteration of felsic tuffs has been observed in thin section of rock from Trench 4. Argillic alteration of rocks on Grid 2 mentioned in the 1983 work has not been reported from the current work.

Table 1 - Silicification and brecciation events - Ridge Zone

----Decreasing Age----------	* 9.	2-3mm glassy quartz veinlets, silicification-cementing of pebbly breccias.
	* 8.	Formation of narrow dyke-like pebble breccias.
	+ 7.	0.5-1.0mm irregular quartz veins.
	6.	Milky 2-5mm irregular quartz veins.
	5.	Clear to light grey quartz infilling, minor veining.
	4.	Chalcedonic veining; rimming of fragments; patchy replacements of rock and complete replacement of carbonate blades by grey to tan chalcedony.
	* 3.	Formation of bladed carbonates (?) in cavities.
	2.	Brecciation.
	1.	Grey to black chalcedonic replacements in volcanics.

* Only occurs locally.

\+ Uncertain age - may be equivalent to 9.

Gold and/or silver minerals have only been observed megascopically in the rare sample from Trench 4 or in sample D9226 from Pit 1. Mineralogical study was therefore done by polished section and Scanning Electron Microscope at U.B.C. as detailed in Appendix F. The SEM shows that gold mainly occurs as free grains of electrum generally measuring from 5-10u (1u = 10^{-3}mm) but locally up to 30u in size and as 2-3u blebs in pyrite. Silver, as well as occurring in electrum mainly occurs as blebs of native silver varying from 3-9u, and rarely up to 20u in length. All silver grains contained traces of Se and S, suggesting that undetected phases of aguilarite (Ag_4SeS) and/or naummannite (Ag_2Se) and/or acanthite (Ag_2S) may be present. Pyrite and chalcopy-

rite with silver-rich digenite rims are common in G1320A. Traces of galena were detected as discrete grains also in G1320A (sample located on DWG. GC6791). Gold and silver mineralization appears to be associated with Stage 4 and/or Stage 5 silicification.

Finely disseminated, euhedral pyrite occurs locally within and peripheral to the Ridge Zone and elsewhere on the property, especially at the southeast corner of Grid 2 within Unit 1.

6. DISCUSSION

Geological mapping, chip sampling and soil geochemical sampling on Wolf have established the presence of numerous north-northeast trending epithermal vein systems carrying variable but extremely significant precious metal values. Veins display characteristics typical of shallow level, low-temperature emplacement such as drusy quartz, banded chalcedonic quartz, fine-grained ore mineralogy and repeated episodes of silicification and brecciation. Veins occur within a pile of subaerial, Eocene acid volcanic flows, volcaniclastics and plugs, and are generally oriented sub-parallel to the regional trend. Possibly a major structure such as a graben controls both distribution of the Eocene volcanics, and formation of the veins. Trenching of a small section of the vein (Ridge Zone) carrying the best Au-Ag values was useful in facilitating sampling and improving exposure, however, deepening overburden to the west and north limited its use. Grades in trenches are variable with the best section averaging 8.49 g/t Au and 42.21 g/t Ag over 7.5m. Lower Grade material (1-3 g/t Au) separates this section from a small exploratory pit located 18m to the northeast which ran 17.10 g/t Au and 164.0 g/t Ag. In epithermal systems ore typically occurs as discrete shoots within the vein structure separated by sections of lower grade or gangue material. This

variability of grade together with geometric complexities in the vein should be anticipated and taken into account during exploration. Flexures of the vein may be important in controlling ore shoots.

All of the known mineralized zones on the Wolf property are clearly located by soil geochemistry (Ag, As, Zn). It appears significant, however, that the best mineralized zone (Ridge Zone) is distinguished by only an Ag anomaly. Other more weakly mineralized zones have a strong As and Zn geochemical signature in addition to Ag. Such variations may reflect differing levels of exposure of each system, ie. base metals are generally more abundant at deeper levels of epithermal systems, which typically measure 200-400 in vertical extent. Several geochemical anomalies located on Grids 1 and 3 are still unexplained and require additional work to explain them.

Overburden appears to thicken rapidly away from known mineralized exposures, especially near the Ridge Zone, and may significantly influence soil geochemical response. Because of the unknown reliability of soil geochemistry, other methods should be tested for tracing the veins in areas of deeper overburden. In particular the zones may be reflected as magnetic lows or may produce a VLF-EM anomaly.

The Wolf showings are believed to represent the first discovery of a significant precious metal prospect within the Tertiary Ootsa Lake Group in central B.C. Other known significant deposits within Tertiary rocks elsewhere in B.C. are the Dusty Mac deposit in south-central B.C. and the Blackdome deposit near Clinton, B.C. Discovery of epithermal Au-Ag veins on Wolf warrants additional evaluation of the Ootsa Lake Group.

7. RECOMMENDATIONS

Based on the results of exploration programs on Wolf in 1983 and 1984, the following recommendations are made for future exploration on the claims.

1. An adequate topographic base map covering the entire expanded claim block should be prepared. Increased detail covering Grids 1, 2 and 3 may be desirable as would a photomosaic or orthophoto base.

2. Magnetic and VLF-EM methods should be tested on the Ridge Zone to see if they would be useful in tracing veins.

3. The current area of interest (Grids 1, 2, 3) should be mapped in greater detail to try and clarify alteration, structure and stratigraphy.

4. Additional sampling and mapping of the Chopper Pad Zone should be carried out as sampling in 1983 and 1984 was inadequate and off the main vein.

5. Soil anomalies in the southwest corner of Grid 1, should be investigated, especially a 3.8ppm Ag sample.

6. The silver in soil anomaly on Grid 2 running from 300S to 400S along the east side of the baseline should be investigated. This anomaly has no associated As or Zn response and as such is similar geochemically to the Ridge Zone.

7. Silver in soil anomalies in the northeast corner of Grid 3 should be investigated by prospecting, trenching, etc.

8. The Ridge Zone should be initially tested by at least 5 diamond drill holes and additional trenching where overburden permits. Orientation and length of the first hole should be toward the west to determine the western limit of the mineralization and associated silicification and alteration. Orientation of the remaining holes would depend on the determined dip of the vein and its trend.

9. Fluid inclusion work may be useful in determining the relative erosion levels of veins in the Ridge Zone and elsewhere. This would be important from an exploration viewpoint as an apparent high erosion level for a weakly mineralized vein would indicate grades may improve with depth.

10. Claims staked in September 1984 should be explored by prospecting, geological mapping, soil sampling and possibly geophysical methods depending up the outcome of (2).

TEST PITS

Four small test pits were hand dug, trying to expose rock along trend, north and south from the trenches. All are between 0.3-0.5m deep. Several rock chips taken from outcrop and sampled by assay under the number shown.

1. Sample - D9225 - bleached white/pale grey silicified quartz-eye tuff-quartz eyes 1-2mm.
   - angular cherty fragments.
   - minor rusty staining along fractures.

2. Sample - D9226 - completely silicified rock, contains minor cherty fragments and thin chalcedonic bands.

3. Sample - D9227 - grey/white to tan moderately silicified quartz-eye tuff - chalky, clay alteration present.

4. Sample - D9229 - grey to tan moderately-strong silicified quartz-eye tuff.

APPENDIX A

COST STATEMENT

COST STATEMENT

PERSONNEL - TEMPORARY

L. Holmgren (Party Chief) - Aug. 4-21; Sept. 17-22 @ $74.16/day	$1,779.84	
B. Laird (Senior) - Aug. 21-30 @ $67.50/day	675.00	
S. Duguid (Junior) - Aug.4-21 @ $51.66/day	929.88	
W. Taylor (Junior) - Aug. 21-30 @ $53.33/day	533.30	
L. Hooley (Cook) - Aug. 4-30 @ $70.00/day	1,890.00	
		$5,807.96

PERSONNEL - PERMANENT

R. M. Cann (Project Geologist) - 10 days @ $105.00/day	$1,050.00	
C. D. Spence (Manager 2 days @ $168.00	336.00	
		$1,386.00
Benefits (25% of above)		$1,798.49
Food and Accomodation (includes contractor)		$2,597.48
Supplies (including radio rental)		$2,001.97
Travel (including truck rental)		$1,016.40
Helicopter (Alpine Helicopters - Burns Lake)		$13,000.00
Fixed Wing (Lakes District Air Services - Burns Lake)		$1,950.00
Assaying - Chemex Labs Ltd.		
61 samples @ $18.75	$1,143.75	
Shipping	127.43	
		$1,271.28
Geochemical Analyses - Acme Analytical Lab.		
Soils 256 @ $10.60	$2,713.60	
Rock 152 @ $8.75	1,330.00	
18 @ $14.25	256.50	
		$4,300.10
Trenching - Van Alphen Exploration Services, Smithers,		
14 days @ $400.00/day	$5,600.00	
Supplies and motel	982.80	
		$6,582.80
Drafting - 5 days @ $126.00/day		$630.00
Report Preparation, including maps etc.		$2,400.00
		$44,742.45

APPENDIX B

SOIL SAMPLE ANALYSES

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone : 253 - 3158

GEOCHEMICAL LABORATORY METHODOLOGY - 1984

Sample Preparation

1. Soil samples are dried at 60°C and sieved to -80 mesh.
2. Rock samples are pulverized to -100 mesh.

Geochemical Analysis (AA and ICP)

0.5 gram samples are digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Extracted metals are determined by :

A. Atomic Absorption (AA)

Ag*, Bi*, Cd*, Co, Cu, Fe, Ga, In, Mn, Mo, Ni, Pb, Sb*, Tl, V, Zn
(* denotes with background correction.)

B. Inductively Coupled Argon Plasma (ICP)

Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cu, Cr, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W, Zn.

Geochemical Analysis for Au*

10.0 gram samples that have been ignited overnite at 600°C are digested with hot dilute aqua regia, and the clear solution obtained is extracted with Methyl Isobutyl Ketone.

Au is determined in the MIBK extract by Atomic Absorption using background correction (Detection Limit = 5 ppb direct AA and 1 ppb graphite AA.)

Geochemical Analysis for Au**, Pd, Pt, Rh

10.0 - 30.0 gram samples are subjected to Fire Assay preconcentration techniques to produce silver beads.

The silver beads are dissolved and Au, Pd, Pt and Rh are determined in the solution by graphite furnace Atomic Absorption.

Geochemical Analysis for As

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml. As is determined in the solution by Graphite Furnace Atomic Absorption (AA) or by Inductively Coupled Argon Plasma (ICP).

Geochemical Analysis for Barium

0.1 gram samples are digested with hot NaOH and EDTA solution, and diluted to 10 ml.

Ba is determined in the solution by Atomic Absorption or ICP.

Geochemical Analysis for Tungsten

1.0 gram samples are fused with KCl, KNO_3 and Na_2CO_3 flux in a test tube, and the fusions are leached with 20 ml water. W in the solution determined by ICP with a detection of 1 ppm.

ACME ANALYTICAL LABORATORIES LTD.
852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6
PHONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: OCT 24 1984

DATE REPORT MAILED: Oct 25/84

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR Mn.Fe.Ca.P.Cr.Mg.Ba.Ti.B.Al.Na.K.W.Si.Zr.Ce.Sn.Y.Nb and Ta. Au DETECTION LIMIT BY ICP IS 3 ppm.
- SAMPLE TYPE: PULP AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: D. Toye DEAN TOYE. CERTIFIED B.C. ASSAYER

RIO ALGOM EXPLORATION PROJECT # 8607 FILE # 84-2142 R PAGE 1

SAMPLE#	Mo ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au* ppb
W84-100	1	3	46	.2	5	2	5
W84-101	2	9	46	.1	4	2	5
W84-102	1	5	41	.1	5	2	5
W84-103	2	4	40	.1	4	2	5
W84-104	2	8	46	.1	2	2	5
W84-105	4	5	52	.1	2	2	5
W84-105B	5	15	98	.1	6	2	5
W84-106	3	10	59	.1	2	2	5
W84-107	2	8	54	.1	3	2	5
W84-108	1	13	29	.3	2	2	5
W84-109	1	9	42	.2	2	2	5
W84-110	1	5	49	.2	2	2	5
W84-111	1	7	39	.1	6	2	75
W84-112	1	9	63	.2	3	2	5
W84-113	1	12	104	.2	2	2	5
W84-114	1	13	67	.2	2	2	5
W84-115	1	12	230	.3	2	2	5
W84-116	1	9	213	.5	6	2	5
W84-117	2	13	496	.9	3	2	5
W84-118	1	11	82	.2	3	3	5
W84-119	1	18	117	.2	2	2	5
W84-120	1	9	32	.2	3	2	5
W84-121	1	14	63	.2	3	2	5
W84-122	1	12	47	.1	2	2	5
W84-123	3	9	47	.2	2	2	5
W84-124	1	9	35	.1	2	2	5
W84-125	1	10	40	.2	2	2	5
W84-126	1	7	38	.1	2	2	5
W84-127	1	12	51	.2	2	2	5
W84-128	1	8	29	.2	2	2	5
W84-129	1	10	29	.1	2	2	5
W84-130	1	9	46	.4	3	2	5
W84-131	1	8	66	.2	3	2	5
W84-132	3	10	129	2.5	10	2	5
W84-133	20	27	255	.8	33	3	5
W84-134	136	31	531	1.1	244	2	5
W84-135	3	14	115	.6	11	2	5
STD S-1/AU-0.5	90	114	184	32.9	117	73	500

ACME ANALYTICAL LABORATORIES LTD.
852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6
PHONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: OCT 1984

DATE REPORT MAILED: Oct 19/84

GEOCHEMICAL ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR Mn.Fe.Ca.P.Cr.Mg.Ba.Ti.B.Al.Na.K.W.Si.Zr.Ce.Sn.Y.Nb and Ta. Au DETECTION LIMIT BY ICP IS 3 ppm.
- SAMPLE TYPE: PULP SOIL AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: D. Toye ..DEAN TOYE. CERTIFIED B.C. ASSAYER

RIO ALGOM EXPLORATION PROJECT # 8607 FILE # 84-2142 R PAGE 1

SAMPLE#	Mo ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au* ppb
W84-136	1	6	51	.1	2	2	5
W84-137	1	10	54	.2	2	2	5
W84-138	1	4	67	.1	2	2	5
W84-139	1	4	57	.1	2	2	5
W84-140	1	7	59	.1	2	2	5
W84-141	1	12	53	.2	3	2	5
W84-142	1	9	60	.1	2	2	5
W84-143	1	8	49	.1	2	2	5
W84-144	1	4	59	.1	4	2	5
W84-145	2	1	87	.2	4	2	5
W84-146	3	2	115	.3	2	2	5
W84-147	2	4	86	.4	2	2	5
W84-148	2	11	96	.3	2	2	5
W84-149	2	6	62	.2	2	2	5
W84-150	2	6	105	.4	2	2	35
W84-151	2	9	85	.2	2	2	5
W84-152	2	5	56	.3	2	2	5
W84-153	1	6	70	.2	3	2	5
W84-154	1	9	57	.7	7	2	5
W84-155	1	1	30	.1	4	2	5
W84-156	1	1	28	.1	2	2	5
W84-157	1	4	33	.2	7	2	25
W84-158	1	3	39	.2	8	2	5
W84-159	3	8	91	.7	7	2	5
W84-160	2	18	68	.4	9	2	5
W84-161	2	13	48	.6	5	2	5
W84-162	3	15	51	.8	6	2	5
W84-163	3	22	31	.3	9	2	5
W84-164	5	19	56	2.0	8	2	5
W84-200	3	9	44	.1	5	2	5
W84-201	2	10	47	.1	5	2	5
W84-202	1	7	51	.1	3	2	5
W84-203	1	11	104	.2	11	2	5
W84-204	1	6	167	.2	3	2	50
W84-205	1	8	43	.1	2	2	5
W84-206	1	4	39	.3	4	2	5
W84-207	1	7	93	.3	4	3	5
STD S-1/AU-0.5	92	118	185	33.7	118	72	510

SAMPLE#	Mo ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au* ppb
W84-208	4	9	124	.2	16	2	5
W84-209	1	2	174	.4	2	2	5
W84-210	3	9	187	.7	15	2	5
W84-211	1	11	161	.4	2	2	5
W84-212	1	5	45	.1	2	2	5
W84-213	1	9	67	.5	9	2	5
W84-214	1	6	70	.3	8	2	5
W84-215	1	2	38	.2	2	2	5
W84-216	1	4	38	.3	2	2	5
W84-217	1	2	33	.1	3	2	5
W84-218	5	300	380	3.8	36	13	5
W84-219	2	12	119	.1	7	2	5
W84-220	1	11	49	.4	3	2	5
W84-221	1	5	48	.3	2	2	5
W84-222	1	4	82	.1	2	2	5
W84-223	1	15	89	.1	9	2	5
W84-224	7	13	166	.4	27	2	5
W84-225	3	10	225	.3	15	2	5
W84-226	4	17	212	.7	19	2	5
W84-227	1	8	95	.4	4	2	5
W84-228	1	9	18	.3	2	2	5
W84-229	1	14	165	.3	8	2	5
W84-230	1	2	81	.3	10	3	5
W84-231	1	13	43	.3	5	2	5
W84-232	2	8	150	.9	11	2	5
W84-234	4	20	329	1.0	12	2	5
W84-235	1	10	170	.5	8	2	5
W84-236	1	6	338	.5	3	2	5
W84-237	1	12	152	.4	2	2	5
W84-238	1	18	306	.3	3	2	5
W84-239	-16	42	547	.2	14	2	5
W84-240	2	10	75	1.0	2	2	5
W84-241	2	16	133	1.2	9	2	10
W84-242	1	5	69	.4	2	2	5
W84-243	1	5	51	.5	2	2	5
W84-244	1	3	64	.5	6	2	5
W84-245	1	4	80	.3	2	2	5
STD S-1/AU-0.5	88	117	183	33.4	118	76	520

SAMPLE#	Mo ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au* ppb
W84-246	2	1	106	.5	5	2	5
W84-247	2	1	87	.3	5	2	5
W84-248	1	1	47	.2	5	2	5
W84-249	2	2	94	.1	5	2	5
W84-250	2	3	129	.3	4	2	5
W84-252	2	7	75	.2	2	2	5
W84-253	2	7	75	.1	3	2	5
W84-254	2	2	52	.1	4	2	5
W84-255	2	5	73	.3	2	2	5
W84-256	2	1	45	.2	4	2	5
W84-257	2	3	52	.1	4	2	5
W84-258	1	2	45	.2	4	2	5
W84-259	1	4	35	.1	3	2	5
W84-260	2	1	39	.2	3	2	5
W84-261	2	6	70	.3	20	2	45
W84-262	1	7	50	.2	7	2	5
W84-263	1	1	70	.3	5	2	5
W84-264	1	1	60	.4	4	3	5
W84-265	1	4	55	.2	3	2	10
W84-266	1	1	79	.4	6	4	5
W84-267	1	4	27	.1	3	2	5
W84-268	1	4	42	.1	5	2	5
W84-269	1	3	33	.1	2	2	5
W84-270	1	5	52	.1	3	2	5
W84-271	2	2	38	.1	2	2	5
W84-272	1	4	65	.1	4	2	5
W84-273	2	8	43	.1	4	2	5
W84-274	1	1	36	.2	6	2	5
W84-275	1	1	45	.1	3	2	5
W84-276	1	4	37	.1	3	2	5
W84-277	1	1	47	.1	3	2	5
W84-278	1	2	39	.2	5	2	5
W84-279	1	3	41	.2	6	2	5
W84-280	1	4	40	.3	6	4	5
W84-281	1	2	22	.1	7	2	5
W84-282	4	5	41	.2	5	2	5
W84-283	3	9	45	.1	6	2	5
STD S-1/AU-0.5	84	115	181	31.5	112	75	500

SAMPLE#	Mo ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au* ppb
W84-284	2	9	52	.1	3	2	5
W84-285	3	8	53	.1	4	2	5
W84-286	3	9	66	.1	7	2	5
W84-287	3	13	43	.1	4	2	5
W84-288	3	12	42	.1	3	2	5
W84-289	3	7	43	.1	7	2	5
W84-290	3	4	33	.1	2	2	5
W84-291	5	15	127	.3	8	2	5
W84-292	2	8	43	.1	5	2	5
W84-293	2	6	33	.1	2	2	5
W84-294	1	6	30	.1	4	2	5
W84-295	1	9	24	.1	2	4	5
W84-296	2	12	54	.2	4	2	5
W84-297	3	14	127	1.0	17	3	5
W84-298	1	11	66	.7	8	3	5
W84-299	1	5	68	.2	8	3	5
W84-300	1	7	27	.1	4	3	5
W84-301	1	6	35	.1	7	3	5
W84-302	1	11	44	.1	6	2	5
W84-303	1	6	30	.1	3	3	5
W84-304	1	9	52	.1	3	2	5
W84-305	1	9	38	.1	6	2	5
W84-306	2	8	29	.1	4	2	5
W84-307	1	2	36	.1	2	2	5
W84-308	2	6	36	.1	2	2	5
W84-309	1	6	31	.1	2	2	5
W84-310	2	6	32	.1	4	2	5
W84-311	2	6	22	.1	2	3	5
W84-312	3	1	43	.1	10	3	5
W84-313	1	8	27	.1	7	4	5
W84-314	2	6	27	.3	7	5	5
W84-315	5	7	164	.6	10	5	5
W84-316	8	15	404	1.3	17	4	5
W84-317	1	5	36	.2	6	6	5
W84-318	1	4	47	.2	6	5	5
W84-319	1	22	27	.1	6	5	5
W84-320	1	4	28	.1	5	4	5
STD S-1/AU-0.5	85	113	182	32.2	115	74	520

SAMPLE#	Mo ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au* ppb
W84-321	1	10	47	.4	5	2	5
W84-322	1	7	29	.1	2	2	5
W84-323	1	7	29	.2	2	2	5
W84-324	2	4	88	.4	3	2	5
W84-325	2	7	42	.5	8	2	5
W84-326	2	8	93	.8	6	2	5
W84-327	1	6	46	.2	2	2	5
W84-328	1	4	32	.2	3	2	5
W84-329	2	10	40	.2	4	2	5
W84-330	1	5	48	.1	3	2	5
W84-331	5	14	184	1.5	13	2	5
W84-332	4	7	92	.4	2	2	5
W84-333	1	4	52	.3	2	2	5
W84-334	1	1	34	.1	2	2	5
W84-335	1	3	44	.1	2	2	5
W84-336	1	9	34	.1	2	2	15
W84-337	2	2	41	.1	2	2	5
W84-338	1	5	32	.3	3	2	5
W84-339	1	4	66	.7	4	2	5
W84-340	1	2	30	.3	6	2	5
W84-341	1	6	24	.2	3	2	5
W84-342	1	1	18	.3	3	4	5
W84-343	1	7	31	.4	3	3	5
W84-344	1	4	22	.4	3	3	5
W84-345	1	4	39	.4	4	3	5
W84-346	1	8	39	.4	4	4	5
W84-347	1	78	70	.5	11	2	5
W84-348	1	14	52	.5	7	5	5
W84-349	1	13	32	.6	10	3	5
W84-350	1	5	27	.6	7	3	10
W84-351	1	5	16	.2	3	3	5
W84-352	1	6	18	.3	4	2	5
W84-353	1	6	31	.5	4	2	5
W84-354	1	3	24	.2	2	2	5
W84-355	1	3	39	.4	5	2	5
W84-356	1	1	40	.3	6	2	5
W84-357	1	4	36	.4	6	2	5
STD S-1/AU-0.5	88	114	181	31.4	107	78	500

SAMPLE#	Mo ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au* ppb
W84-358	2	15	39	.4	6	2	15
W84-359	3	9	46	.2	8	2	15
W84-360	5	11	57	.5	5	2	5
W84-361	1	13	17	.2	5	2	5
W84-363	3	15	69	.5	10	2	5
W84-364	2	16	64	.4	9	2	5
W84-365	1	12	51	.2	6	2	5
W84-366	1	3	57	.2	8	2	5
W84-367	1	9	31	.2	3	2	5
W84-368	2	14	73	.4	8	2	5
W84-369	2	10	44	.2	9	2	5
W84-370	3	5	38	.1	9	2	5
W84-371	2	10	46	.2	5	2	5
W84-372	2	13	32	.1	4	2	5
W84-373	2	13	46	.1	2	2	5
W84-374	2	15	73	.6	5	2	5
W84-375	1	8	29	.1	3	2	5
W84-376	1	6	46	.3	2	2	5
W84-377	1	13	71	.4	4	2	5
W84-378	1	13	54	.4	3	2	5
W84-379	1	14	140	1.5	8	2	5
W84-380	1	10	96	1.0	12	2	5
W84-381	1	18	102	3.1	11	2	5
W84-382	1	10	33	.4	6	2	5
W84-383	1	9	27	.4	6	2	5
W84-384	1	9	27	.3	5	2	5
W84-385	1	6	33	.2	5	2	5
W84-386	1	6	27	.1	6	2	5
W84-387	1	9	28	.3	5	2	5
W84-388	1	4	44	.2	6	2	5
W84-389	2	12	37	.1	5	2	5
W84-390	1	4	37	.2	6	2	5
W84-391	3	14	47	.1	6	2	5
STD S-1/AU-0.5	83	115	181	31.2	124	73	520

APPENDIX C

CHIP SAMPLE ANALYSES

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone : 253 - 3158

GEOCHEMICAL LABORATORY METHODOLOGY - 1984

Sample Preparation

1. Soil samples are dried at 60°C and sieved to -80 mesh.
2. Rock samples are pulverized to -100 mesh.

Geochemical Analysis (AA and ICP)

0.5 gram samples are digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Extracted metals are determined by :

A. Atomic Absorption (AA)

Ag*, Bi*, Cd*, Co, Cu, Fe, Ga, In, Mn, Mo, Ni, Pb, Sb*, Tl, V, Zn
(* denotes with background correction.)

B. Inductively Coupled Argon Plasma (ICP)

Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cu, Cr, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W, Zn.

Geochemical Analysis for Au*

10.0 gram samples that have been ignited overnite at 600°C are digested with hot dilute aqua regia, and the clear solution obtained is extracted with Methyl Isobutyl Ketone.

Au is determined in the MIBK extract by Atomic Absorption using background correction (Detection Limit = 5 ppb direct AA and 1 ppb graphite AA.)

Geochemical Analysis for Au**, Pd, Pt, Rh

10.0 - 30.0 gram samples are subjected to Fire Assay preconcentration techniques to produce silver beads.

The silver beads are dissolved and Au, Pd, Pt and Rh are determined in the solution by graphite furnace Atomic Absorption.

Geochemical Analysis for As

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml. As is determined in the solution by Graphite Furnace Atomic Absorption (AA) or by Inductively Coupled Argon Plasma (ICP).

Geochemical Analysis for Barium

0.1 gram samples are digested with hot NaOH and EDTA solution, and diluted to 10 ml.

Ba is determined in the solution by Atomic Absorption or ICP.

Geochemical Analysis for Tungsten

1.0 gram samples are fused with KCl, KNO_3 and Na_2CO_3 flux in a test tube, and the fusions are leached with 20 ml water. W in the solution determined by ICP with a detection of 1 ppm.

SAMPLE# Rock.	AG PPM	AU* PPB
G-1302	.7	10
G-1303	.4	25
G-1304	.4	5
G-1305	18.3	2630
G-1306	.2	30
G-1307	.7	75
G-1308	4.3	250
G-1309	3.8	475
G-1310	.8	50
G-1311	.5	40
G-1312	.9	130
G-1313	.5	40
G-1314	.7	25
G-1315	.4	25
G-1316	.9	5
G-1317	.3	5
G-1318	.1	5
G-1319	6.2	1510
G-1320	54.7	7100
G-1321	63.7	5840
G-1322	7.1	430
G-1323	.4	25
G-1324	.4	5
G-1325	.2	15
G-1326	.2	5
G-1327	1.2	25
G-1328	.9	40
G-1331	.3	55
G-1332	.3	65
G-1333	1.3	165
G-1334	4.4	210
G-1335	.2	5
STD S-1/AU-0.5	32.5	530

ACME ANALYTICAL LABORATORIES LTD.
852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6
PHONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: AUG 24 1984

DATE REPORT MAILED: Aug 28/84

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: ROCK CHIPS AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: D. Toye. DEAN TOYE. CERTIFIED B.C. ASSAYER

RIO ALGOM PROJECT # 8607 FILE # 84-2282

SAMPLE#	AG PPM	AU* PPB
G-1329	.2	5
G-1330	.1	5
G-1336	.5	20
G-1337	.1	5
G-1338	.6	15
G-1339	.1	20
G-1340	.1	5
G-1341	.6	125
G-1342	1.1	10
G-1343	.4	25
G-1344	5.9	430
G-1345	.5	15
G-1346	.3	20
G-1347	.5	20
G-1348	.2	5
G-1349	.8	25
G-1350	.1	20
G-1351	.1	5
G-1352	.1	30
G-1353	.1	5
G-1354	.1	5
G-1355	.2	5
G-1356	4.1	330
G-1357	1.4	85
G-1358	2.4	70
G-1359	1.2	130
G-1360	.4	25
G-1361	.1	40
G-1362	.1	15
G-1363	.2	20
G-1364	.8	105
G-1365	.4	50
G-1366	1.1	60
G-1367	.1	10
G-1368	.1	5
G-1369	.1	35
G-1370	.1	25
STD C/AU-0.5	7.1	510

SAMPLE#	AG PPM	AU* PPB
G-1371	.7	50
G-1372	.1	5
G-1373	.4	5
G-1374	.3	10
G-1375	.6	60
G-1376	1.5	155
G-1377	1.8	140
G-1378	.6	100
G-1379	1.2	95
G-1380	.8	20
G-1381	1.6	245
G-1382	.5	5
G-1383	.5	25
G-1384	1.6	95
G-1385	1.1	55
G-1386	1.7	60
G-1387	.6	65
G-1388	.3	30
G-1389	2.0	160
G-1390	3.3	415
G-1391	4.7	620
G-1392	12.6	985
G-1393	1.7	280
G-1394	1.2	125
G-1395	.8	70
G-1396	.2	15
G-1397	9.7	565
G-1398	1.3	25
G-1399	.4	20
G-1400	2.0	10
G-1451	1.6	585
G-1452	.7	60
G-1453	1.1	25
G-1454	1.8	70
G-1455	.6	55
G-1456	.6	5
G-1457	.4	20
STD C/AU-0.5	7.5	490

SAMPLE#	AG PPM	AU* PPB
G-1458	.3	40
G-1459	.2	5
G-1460	.9	5
G-1461	.3	5
G-1462	.5	5
G-1463	.4	5
G-1464	.7	5
G-1465	.8	165
G-1466	2.2	5
G-1467	.4	5
G-1468	.3	5
G-1469	.2	10
G-1470	.1	5
G-1471	.2	5
G-1472	.3	5
G-1473	.1	5
G-1474	.1	5
G-1475	.2	5
G-1476	.2	5
G-1477	.1	5
G-1478	.1	5
G-1479	.1	5
G-1480	.1	5
G-1481	.2	5
G-1482	.1	5
G-1483	.3	5
STD C/AU-0.5	7.6	500

ACME ANALYTICAL LABORATORIES LTD. 852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6 PHONE 253-3158 DATA LINE 251-1011

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: PULP AU** ANALYSIS BY FA+AA FROM 10 GRAM SAMPLE.

re analysis for Au

DATE RECEIVED: SEPT 1984 DATE REPORT MAILED: Sept 25/84 ASSAYER. D. Toye .DEAN TOYE. CERTIFIED B.C. ASSAYER

RIO ALGOM EXPLORATION PROJECT # 8607 FILE # 84-2465 R

SAMPLE#	MO PPM	CU PPM	PB PPM	ZN PPM	AG PPM	NI PPM	CO PPM	MN PPM	FE %	AS PPM	U PPM	AU PPM	TH PPM	SR PPM	CD PPM	SB PPM	BI PPM	V PPM	CA %	P %	LA PPM	CR PPM	MG %	BA PPM	TI %	B PPM	AL %	NA %	K %	W PPM	AU** PPB
G-1484	6	6	10	50	.2	3	1	196	1.17	17	5	ND	6	3	1	2	2	6	.02	.02	39	6	.03	11	.01	3	.38	.01	.15	2	4
G-1485	2	1	9	46	.1	1	1	78	.82	10	5	ND	8	2	1	4	2	7	.01	.03	57	1	.02	10	.01	3	.32	.03	.09	2	3
G-1486	7	1	27	38	.6	3	1	133	.85	10	5	ND	6	2	1	3	2	5	.01	.03	44	2	.02	10	.01	6	.28	.01	.14	2	20
G-1487	9	2	11	28	1.0	2	1	222	1.06	15	5	ND	7	4	1	3	2	8	.04	.03	38	2	.04	14	.01	4	.33	.01	.14	2	15
G-1488	15	1	10	27	5.0	2	1	193	.91	16	5	ND	6	3	1	2	2	5	.01	.03	37	3	.02	13	.01	2	.29	.01	.14	2	170
G-1489	7	1	7	27	.8	1	1	482	.82	11	5	ND	5	3	1	2	2	4	.01	.03	43	1	.01	14	.01	3	.28	.01	.13	2	16
G-1490	5	5	8	31	1.0	4	3	363	1.24	15	5	ND	5	3	1	2	2	19	.04	.02	29	4	.15	18	.03	2	.39	.01	.12	2	75
G-1491	12	2	7	23	1.8	2	1	305	1.09	34	5	ND	6	3	1	2	2	6	.05	.04	38	2	.05	15	.01	4	.37	.01	.15	2	31
G-1492	14	11	7	27	1.8	8	3	216	1.70	49	5	ND	6	13	1	2	2	16	.08	.05	38	10	.18	16	.06	2	.44	.08	.18	2	60
G-1493	6	1	3	19	1.0	1	1	140	.85	19	5	ND	8	3	1	3	2	4	.02	.03	40	2	.02	9	.01	2	.29	.01	.13	2	72
G-1494	10	3	3	27	.5	1	1	130	1.37	31	5	ND	6	3	1	3	2	5	.01	.04	39	4	.01	12	.01	5	.30	.01	.15	2	60
G-1495	5	5	8	27	.2	1	1	129	.92	18	5	ND	5	3	1	3	2	7	.03	.03	38	1	.06	9	.01	2	.34	.01	.11	2	145
G-1496	6	1	11	23	.4	2	1	95	1.02	26	5	ND	6	3	1	3	2	4	.01	.03	39	3	.01	9	.01	2	.25	.01	.13	2	23
G-1497	4	2	7	24	.5	1	1	642	.82	23	5	ND	8	3	1	3	2	4	.01	.03	38	2	.01	15	.01	2	.27	.01	.12	2	20
G-1498	5	2	5	32	.1	1	1	185	1.04	18	5	ND	8	3	1	3	2	4	.01	.03	42	3	.02	9	.01	4	.31	.01	.13	2	13
G-1499	5	2	5	39	1.0	1	1	467	1.29	30	5	ND	7	3	1	3	2	6	.02	.04	35	2	.05	14	.01	2	.36	.01	.12	2	40
G-1500	8	2	5	24	.5	2	1	195	1.00	29	5	ND	7	3	1	2	2	4	.01	.03	34	3	.01	9	.01	2	.27	.01	.13	2	22
G-2507	8	2	6	13	21.6	1	1	44	.70	34	5	ND	3	2	1	4	2	3	.01	.01	12	2	.01	12	.01	4	.18	.01	.10	2	1410
STD C/FA-AU	21	59	39	125	7.9	71	28	1069	3.82	41	20	9	41	49	18	16	21	59	.44	.14	40	58	.88	179	.06	39	1.72	.07	.14	15	54

ME ANALYTICAL LABORATORIES LTD.
2 HASTINGS ST. VANCOUVER B.C. V6A 1R6
ONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: AUG 29 1984

DATE REPORT MAILED: Sept 4/84

GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-3 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: ROCK CHIPS AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.

ASSAYER: D. Toye. DEAN TOYE. CERTIFIED B.C. ASSAYER

RIO ALGOM PROJECT # 8607 FILE # 84-2367

SAMPLE#	AG PPM	AU* PPB
G-0511	12.5	1760
G-0512	.3	5

APPENDIX D

TRENCH ASSAYS

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ASSAY

TO : RIO ALGOM EXPLORATION INC.

520 - 800 W. PENDER ST.
VANCOUVER, B.C.
V6C 2V6

ATTN: C. SPENCE

CERT. # : A8415669-001-A
INVOICE # : I8415669
DATE : 13-SEP-84
P.O. # : 8607

Sample description	Prep code	Ag AA g/tonne	Au g/tonne				
D9451	207	7.0	1.30	--	--	--	--
D9452	207	64.0	5.07	--	--	--	--
D9453	207	8.0	0.86	--	--	--	--
D9454	207	6.5	1.58	--	--	--	--
D9455	207	8.5	1.10	--	--	--	--
D9456	207	3.3	0.27	--	--	--	--
D9457	207	6.0	0.75	--	--	--	--
D9458	207	11.5	0.14	--	--	--	--
D9459	207	9.5	0.21	--	--	--	--
D9460	207	7.5	0.14	--	--	--	--
D9461	207	3.3	<0.07	--	--	--	--
D9462	207	<0.3	<0.07	--	--	--	--
D9463	207	<0.3	<0.07	--	--	--	--
D9464	207	<0.3	<0.07	--	--	--	--
D9465	207	<0.3	0.24	--	--	--	--
D9466	207	2.3	0.14	--	--	--	--
D9467	207	<0.3	<0.07	--	--	--	--
D9468	207	<0.3	<0.07	--	--	--	--
D9469	207	0.8	<0.07	--	--	--	--
D9470	207	<0.3	<0.07	--	--	--	--
D9471	207	1.9	<0.07	--	--	--	--
D9472	207	3.9	0.07	--	--	--	--
D9473	207	4.4	0.07	--	--	--	--
D9474	207	<0.3	<0.07	--	--	--	--
D9475	207	<0.3	<0.07	--	--	--	--
D9476	207	<0.3	0.14	--	--	--	--
D9477	207	<0.3	<0.07	--	--	--	--
D9478	207	17.0	13.58	--	--	--	--
D9479	207	14.5	10.14	--	--	--	--
D9480	207	6.5	5.01	--	--	--	--
D9481	207	88.0	10.35	--	--	--	--
D9482	207	67.0	4.28	--	--	--	--
D9483	207	46.0	5.83	--	--	--	--

B. Thwaites

Registered Assayer, Province of British Columbia

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ASSAY

TO : RIO ALGOM EXPLORATION INC.

520 - 800 W. PENDER ST.
VANCOUVER, B.C.
V6C 2V6

ATTN: COLIN SPENCE

CERT. # : A8416417-001-A
INVOICE # : I8416417
DATE : 2-OCT-84
P.O. # : 8607

Sample description	Prep code	Ag AA g/tonne	Au g/tonne				
D 9201	207	13.0	2.47	--	--	--	--
D 9202	207	14.0	1.37	--	--	--	--
D 9203	207	16.5	0.48	--	--	--	--
D 9204	207	9.5	1.17	--	--	--	--
D 9205	207	6.5	1.03	--	--	--	--
D 9206	207	12.5	1.44	--	--	--	--
D 9207	207	8.0	0.89	--	--	--	--
D 9208	207	2.3	0.48	--	--	--	--
D 9209	207	3.9	0.41	--	--	--	--
D 9210	207	10.5	0.48	--	--	--	--
D 9211	207	12.5	1.03	--	--	--	--
D 9212	207	45.5	7.95	--	--	--	--
D 9213	207	8.0	0.34	--	--	--	--
D 9214	207	6.0	0.14	--	--	--	--
D 9215	207	9.5	5.69	--	--	--	--
D 9216	207	5.5	1.30	--	--	--	--

B. Laroute

Registered Assayer, Province of British Columbia

CTA

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Telephone:(604) 984-0221
Telex: 043-52597

CERTIFICATE OF ASSAY

TO : RIO ALGOM EXPLORATION INC.

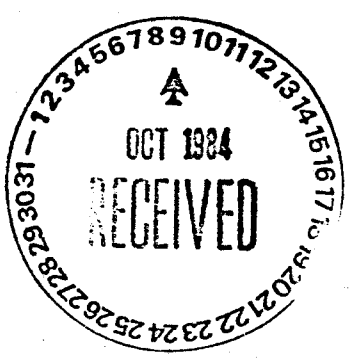
520 - 800 W. PENDER ST.
VANCOUVER, B.C.
V6C 2V6

CERT. # : A8416434-001-A
INVOICE # : 18416434
DATE : 5-OCT-84
P.O. # : NONE
8607

** CORRECTED COPY

ATTN: C. SPENCE

Sample description	Prep code	Ag AA g/tonne	Au g/tonne					
D 9217	207	31.9	1.51		--	--	--	--
D 9218	207	18.5	0.80		--	--	--	--
D 9219	207	91.2	4.87		--	--	--	--
D 9220	207	70.6	4.73		--	--	--	--
D 9221	207	16.1	1.17		--	--	--	--
D 9222	207	18.5	1.65		--	--	--	--
D 9223	207	3.7	0.40		--	--	--	--
D 9224	207	18.5	1.30		--	--	--	--
D 9225	207	3.7	0.30		--	--	--	--
D 9226	207	164.0	17.10	**	--	--	--	--
D 9227	207	5.8	0.30		--	--	--	--
D 9228	207	2.7	0.20		--	--	--	--



Registered Assayer, Province of British Columbia

APPENDIX E
TRENCH DATA AND DESCRIPTIONS

TRENCH #: 1 DATE: August 28, 1984

Length:	7.5m
Width:	1m
Depth:	1.5m
Trend:	090° E-W
Location:	200S, 1180E - trench extends east from this point 7.5m.
Rock Type:	- quartz eye tuff, often brecciated. - lapilli tuff occupies central portion of trench.
Alteration:	- moderately to strongly silicified with drusy chalcedonic quartz veins. - bleaching and clay alteration of host rock. Intense silicification at the western end of the trench.
Mineralization:	- trace to 1% pyrite near the eastern end of the trench.

TRENCH #: 2 DATE: August 28, 1984

Length:	7.5m
Width:	1m
Depth:	1m
Trend:	110°
Location:	- 28m NE (048°) of 200S, 1180E - trench extends east from this point.
Rock Type:	- quartz eye tuff with local banding (E-W) and local, minor brecciation.
Alteration:	- weakly to moderately silicified, clay alteration and bleaching of host rock. - chalcedonic drusy quartz veins.
Mineralization:	- none visible.

TRENCH #: 3 DATE: August 29, 1984

Length:	7.7m
Width:	1m
Depth:	1.5m
Trend:	090° E-W
Location:	20.5m SE (157°) from 200S, 1180E - trench extends east from this point.
Rock Type:	- quartz eye tuff, locally banded and locally brecciated. - banding is N-S.
Alteration:	- weak to strong silicification, generally decreasing eastward.

TRENCH # 3 cont.

	- chalcedonic drusy quartz veining present. - bleaching and clay (?) alteration of fresher host rocks.
Mineralization:	- trace to 1% finely disseminated pyrite appears to be associated with banded host rock.

TRENCH #: 4 DATE: August 29, 1984

Length:	6.5m
Width:	1.5m
Depth:	0.5m
Trend:	130°
Location:	4m SW (212°) from 200S, 1180E - trench extends west from this point.
Fractures at:	- quartz vein, 5cm wide, trend approximately 175°/50W.
Rock Type:	- severely brecciated quartz-eye tuff.
Alteration:	- intense multistage silicification and pervasive chalcedonic, drusy quartz. - often, near complete silica replacement of breccia fragments.
Mineralization:	- trace amounts of pyrite were observed in outcrop at the eastern end of the trench, however after blasting no mineralization was observed.

TRENCH #: 4 extension DATE: September 20/84

Length:	additional 2.0m
Width:	1.5m
Depth:	0.6-0.7m
Trend:	130°
Location:	- extended 2.0m W from Western end of Trench 4.
Rock Type:	- original trench - brecciated and silicified quartz-eye tuff. - in the extension the percentage of volcanic rock fragments increases while the amount of crystalline quartz matrix decreases. - towards the western end - grey/tan altered tuff fragments separated by quartz microveinlets are noted.
Mineralization:	- none visible in the extension.

TRENCH #: 5 DATE: September 18, 1984

Length:	6.0m
Width:	1.5m
Depth:	0.3-0.5m
Trend:	150°
Location:	5m N @ 35° from W end of Trench 1 - extends W from this point 6.0m
Fractures at:	160°/58° SW 030°/64° SE
Rock Type:	- rhyolitic crystal tuff - pale grey/green, locally silicified, breccia fragments separated by quartz microveinlets and vugs.
Alteration:	- locally extremely silicified - milky white crystalline quartz or dark grey cherty patches. - rusty weathering increases toward western end, as does tan alteration/bleaching of fragments and kaolinization of felds-pars.
Mineralization:	- none visible.

TRENCH #: 6 DATE: September 19, 1984

Length:	6.5m
Width:	1.2m
Depth:	0.3-0.4m
Trend:	126°
Location:	38° from E end of Trench 4 - 7 metres.
Rock Type:	- rhyolitic tuff fragments - brecciated and cemented by crosscutting quartz micro-veinlets. - extremely brecciated section (0.6-0.8m) - 0.1cm to 1.5cm volcanic fragments cemented in an extremely siliceous matrix with intense limonite around fragments.
Alteration:	- tan bleaching/alteration of fragments, which decreases westward in trench. - chalcedonic bands found between fragments. - fragments are locally silicified.
Mineralization:	- none visible.

TRENCH #: 7 DATE: September 20, 1984

Length:	6.5m
Width:	1.1m
Depth:	0.4-0.6m

TRENCH #: 7 cont.

Trend:	124°
Location:	1.5m west of the western end of Trench 1. - extends 6.5m west from this point.
Fractures at:	018/84°E
Rock Type:	- rhyolitic quartz eye tuff, locally brecciated with cherty fragments, feldspar porphyry fragments. - fragments separated by thin crosscutting quartz veinlets.
Alteration:	- minor rusty staining along fractures. - bleached grey white locally, milky white crystalline siliceous patches. - feldspars altered to clay minerals. - tan alteration/bleaching of fragments.
Mineralization:	- non visible.

TRENCH #: 8 DATE: September 21, 1984

Length:	2.0m
Width:	1.0m
Depth:	0.2-0.3m
Trend:	136°
Location:	W end of 8 is 2.85m north (060°) from the W end of Trench 5.
Rock Type:	- brecciated rhyolitic quartz-eye tuff, pale to dark green-grey fragments, some dark cherty fragments, silicified/bleached volcanic fragments.
Alteration:	- moderate to strong silicification seen locally between fragments quartz is vuggy, with limonite stain lining cavities. - bleaching and alteration of volcanic fragments to tan color, tan alteration increases towards W end of trench.
Mineralization:	- 1-2% fine grained disseminated pyrite noted.

APPENDIX F

SUMMARY OF SEM WORK ON Au-Ag MINERALOGY

APPENDIX F

WOLF TRENCH SAMPLES MINERALOGY

Summary of SEM Work

on Au-Ag Mineralogy

Five relatively high-grade specimens from the trenched area on Wolf (see location map) were selected for detailed mineralographic work to determine how and where the Au and Ag occurs. Polished sections were first examined under the microscope, using reflected light, to select areas and grains for detailed work. Qualitative determination of the composition of selected grains was done by John Knight, Dept. of Geological Sciences, U.B.C., using an SEM (SEMCO - Nanolab 7).

Mineralogy will only be summarized here. Individual sample descriptions and photo images of selected grains are attached. Gold mainly occurs as free grains of electrum generally measuring from 5-10u in size (1u = 10^{-3}mm) but locally up to 20u, and as 2-3u blebs in pyrite. Silver, as well as occurring in electrum mainly occurs as blebs of native silver varying in size from 3-9u, and rarely up to 20u in length. All silver grains contained traces of Se and S, suggesting undetected phases of aguilarite (Ag_4 SeS) and/or naummannite (Ag_2Se) and/or acanthite (Ag_2S) may be present. Pyrite and chalcopyrite with silver-rich digenite rims are common in G1320A. Traces of galena were detected as discrete grains in G1320A.

This mineral assemblage and micron-size mode of occurrence of the gold and silver are typically described in the middle levels of current epithermal models.

SAMPLE DESCRIPTIONS

D9226 - small pit north of trenches (Ag 164.0 g/t; Au 17.10 g/t) Photo 1,2,3.

- All metallics tested were either electrum (pale gold under microscope) or native silver. All grains of silver contained minor S and occassional traces of Se suggesting there may be undetected phases of aguilarite (Ag_4SeS) and/or naumannite (Ag_2Se) and/or acanthite. Typical grain size is around 5u, however, grains of electrum were also common up to 20u.

G1320A- Original chip sample across location of Trench 4 (Ag 54.7 g/t; Au 7.1 g/t). Photos 4, 5, 6.

- Cubic grains of pyrite are common in this section and are locally surrounded by irregular chalcopyrite grains. Identification of both pyrite and chalcopyrite was confirmed by SEM (chalcopyrite may be identified by secondary rims of blue digenite).

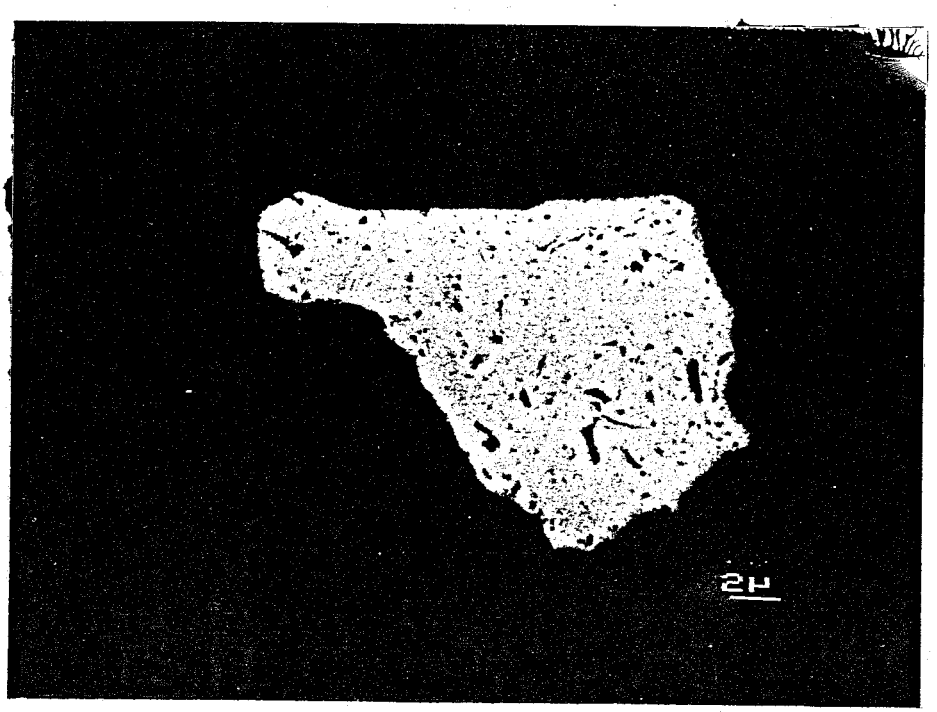
...2

Rounded blebs of gold, approximately 2u across were identified in one pyrite grain. Silver is contained in a Ag-Se mineral (native silver-naumannite?) and was also noted in one grain containing Cu-Au-Ag-As (possibly multiphase). One 5-10u grain of galena was also noted.

G1320B - As above. Photo 7.
- This section was given only a cursory examination. Several primary phases were identified, namely monazite (4u X 10u , rutile or ilmenite, and zircon. One 5u grain of silver was identified.

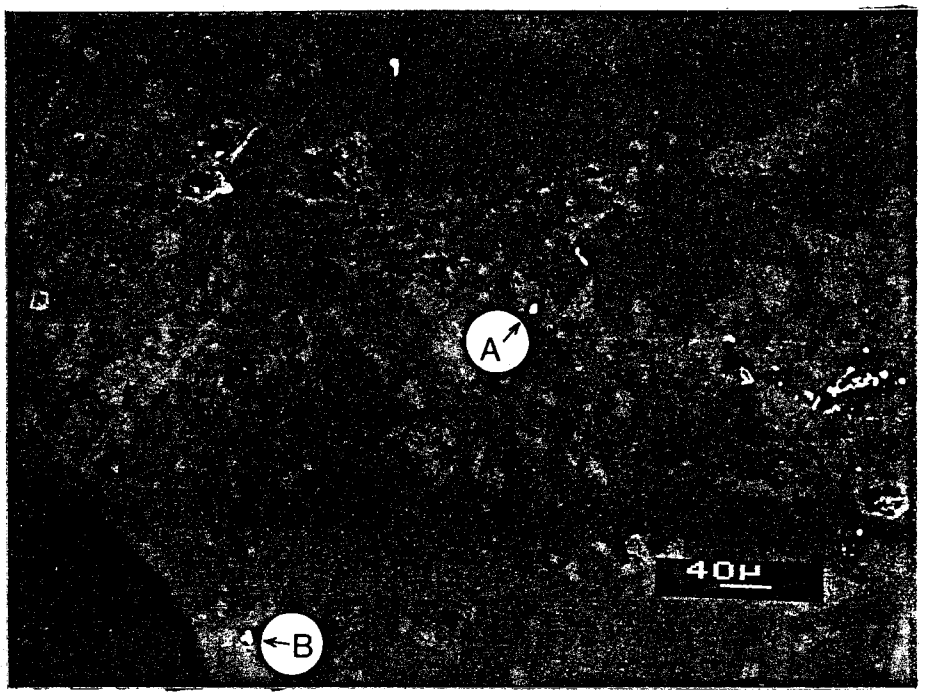
W-A4 - Specimen from near west end of Trench 4. Only one area was selected for examination. No metallics were observed. One area thought to be metallic is probably polishing compound.

W-C4 - East end of Trench 4. In the one area examined metallics consisted 1-5u grains of electrum and rare grains of native silver.

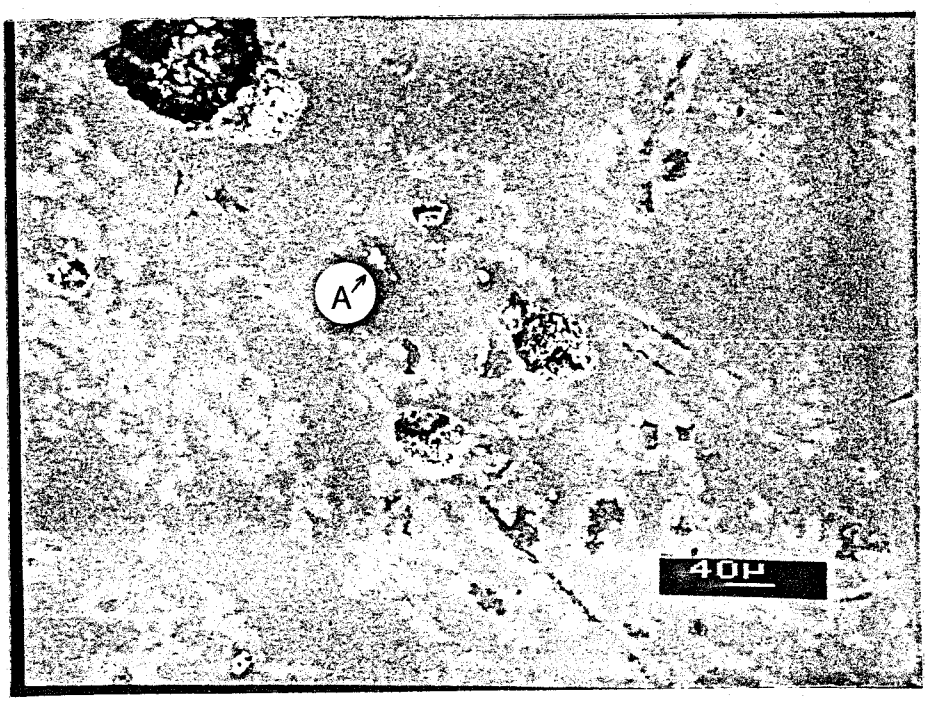


1. Sample D9226. Electrum grain approximately 18u X 14u.

B.C. PROPERTY - WOLF TRENCH SAMPLES MINERALOGY



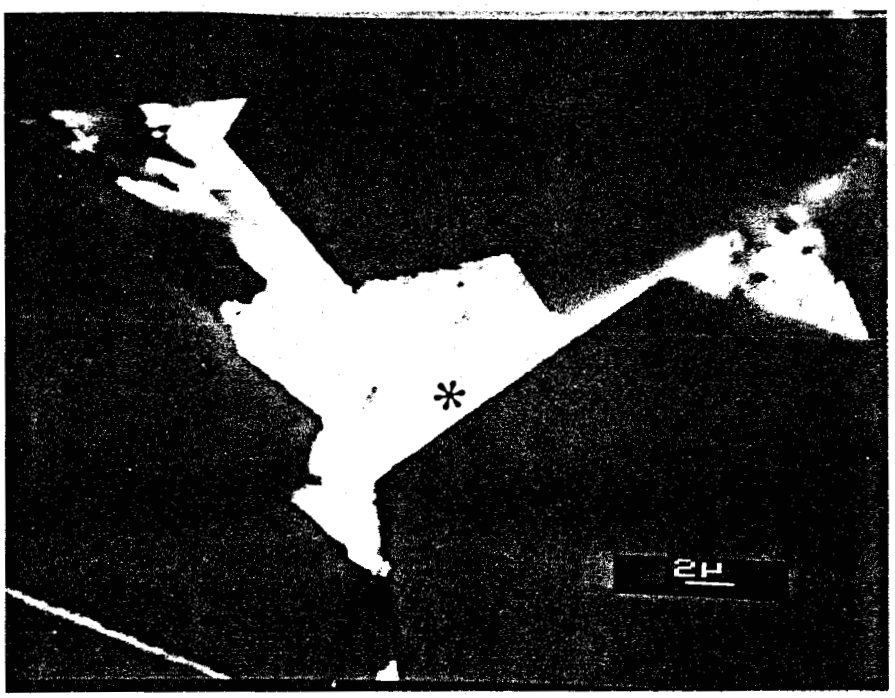
2. Sample D9226. A - Electrum grain approximately 7u long. B- Native silver with minor sulphide (possible minor acanthite). Grain is approximately 9u across.



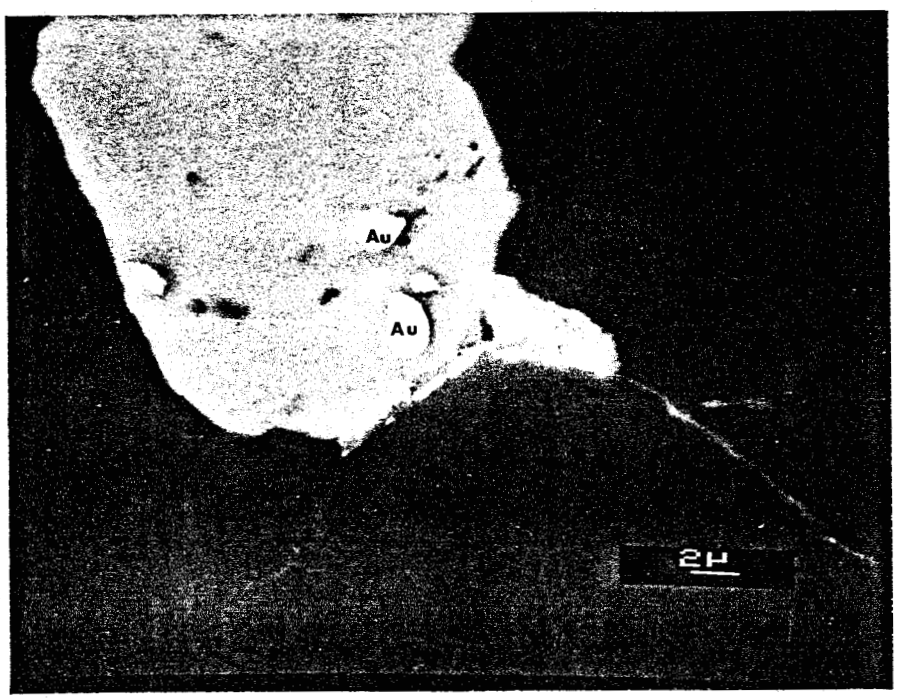
3. Sample D9226. A - Native silver with minor Se (possible naumannite phase - Ag_2Se).

...4

B.C. PROPERTY - WOLF TRENCH SAMPLES MINERALOGY

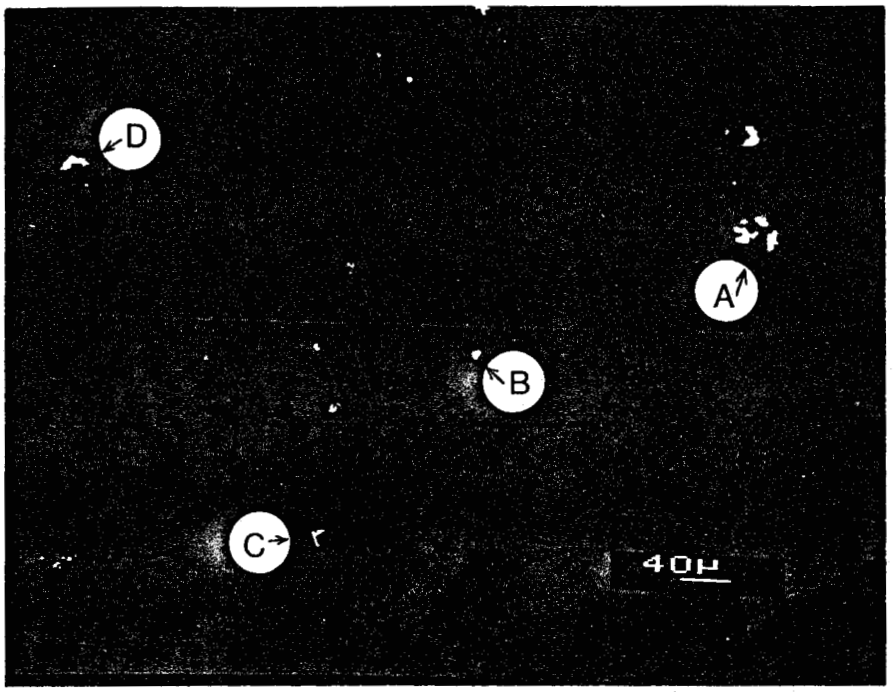


4. SAMPLE 1320A. Au-Ag-Cu-As (+minor S) phase. Analysis done at asterisk.

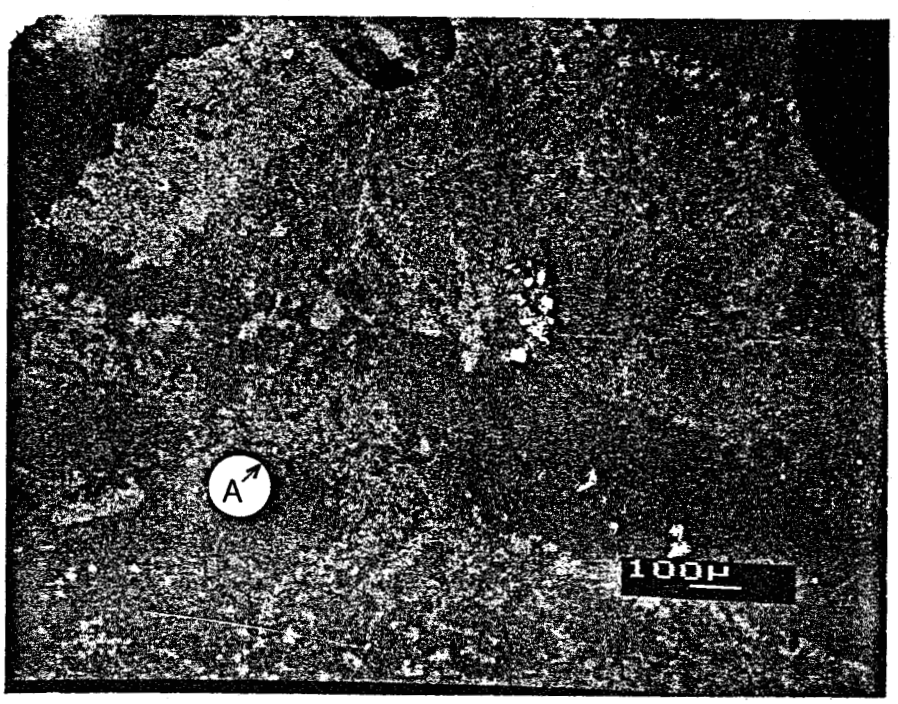


5. Sample 1320A. Gold blebs in pyrite. Grains are 2u and 2.5u long.

...5



6. Sample 1320A. A-Irregular grains of pyrite-chalcopyrite-galena. B and C - Native silver with minor Se(traces of naumannite?). D-Native silver with minor S (minor acanthite?). Grain is approximately 20u long.



7. Sample 1320B. A-Native silver grain approximately 8u long.

STATEMENT OF QUALIFICATIONS

1. I am a geologist residing at #3-313 Highland Way, Port Moody, B.C. and am employed by Rio Algom Exploration Inc., of Ste. 520-800 West Pender Street, Vancouver, B.C.

2. I am a graduate of The University of British Columbia with a B.Sc. (Geology) in 1976, and an M.Sc. (Geology) in 1979.

3. I have practised my profession with Rio Algom and other companies since graduation.

4. I am a Member of the Geological Association of Canada and a Member of the Canadian Institute of Mining and Metallurgy.

5. I supervised the geological, geochemical and trenching programs conducted on the Wolf Claims in August and September, 1984.

R. M. Cann

Vancouver, B.C.
December 1984

LEGEND

- >0·6 ppm Ag in soil
- Silicified zone (approximate)
- 219 — Soil sample number (prefixed by w)
- 0·4, 5 — Soil sample ppm Ag, ppb Au
- x 0·1, 10 / G1302 — Chip sample ppm Ag, ppb Au; 1984 sample number

NTS 93/F3

SCALE 1:2000

50 0 50 100 150 Metres

N

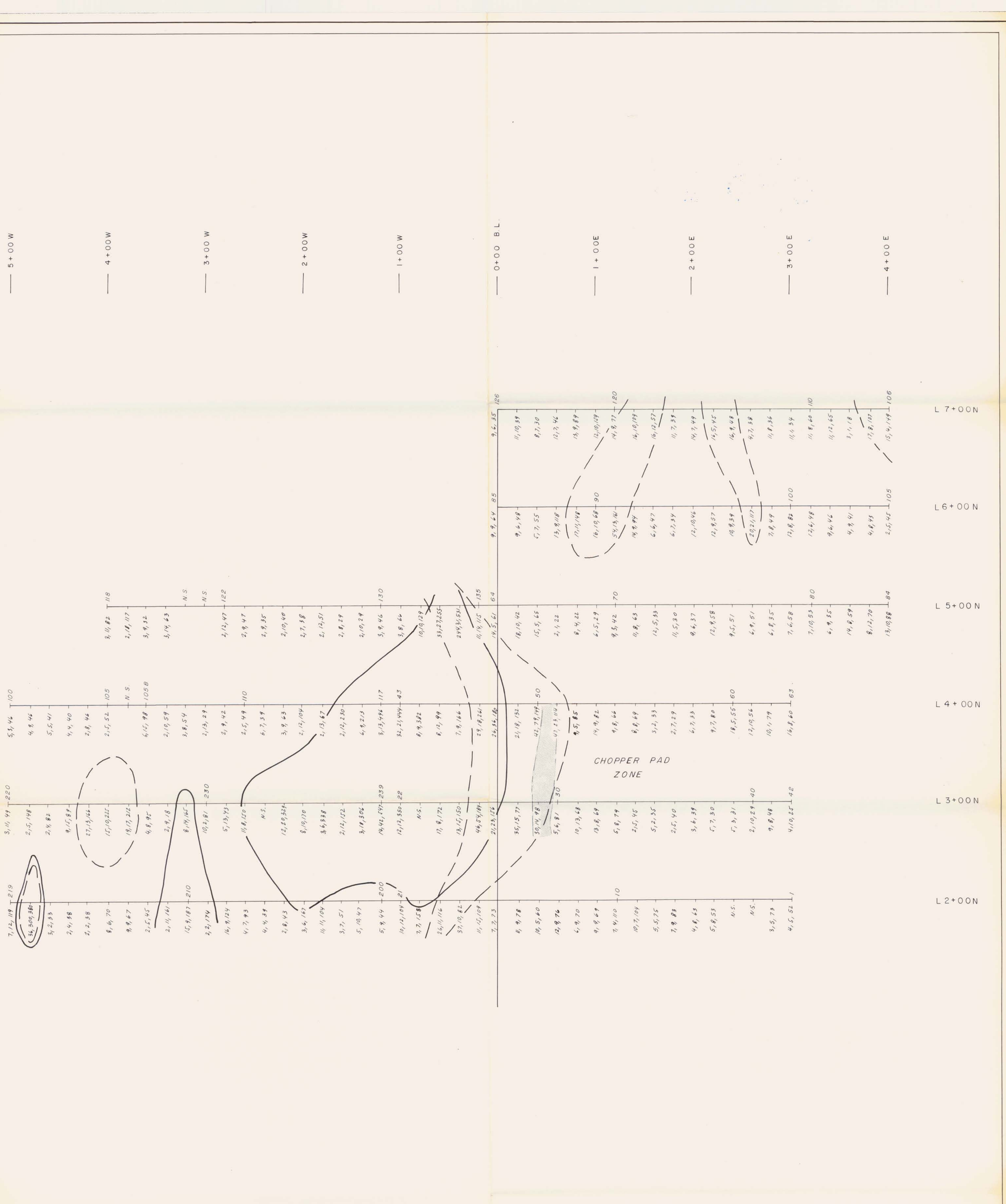
Rio Algom Exploration Inc.

WOLF CLAIMS

GRID 1

Ag, Au IN SOILS & ROCKS

DATE	DRAWN BY	DWG.
NOV. 1984.	R.M.C. / J.S.	GC 7640



LEGEND

- >150 ppm Zn
- >15 ppm As
- Silicified zone (approximate)
- 219 — Soil sample number (prefixed by w)
- 10, 34, 186 — Soil sample ppm As, ppm Pb, ppm Zn

NTS 93/F3
SCALE 1:2000
50 0 50 100 150 Metres

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,968 PART 1 OF 3

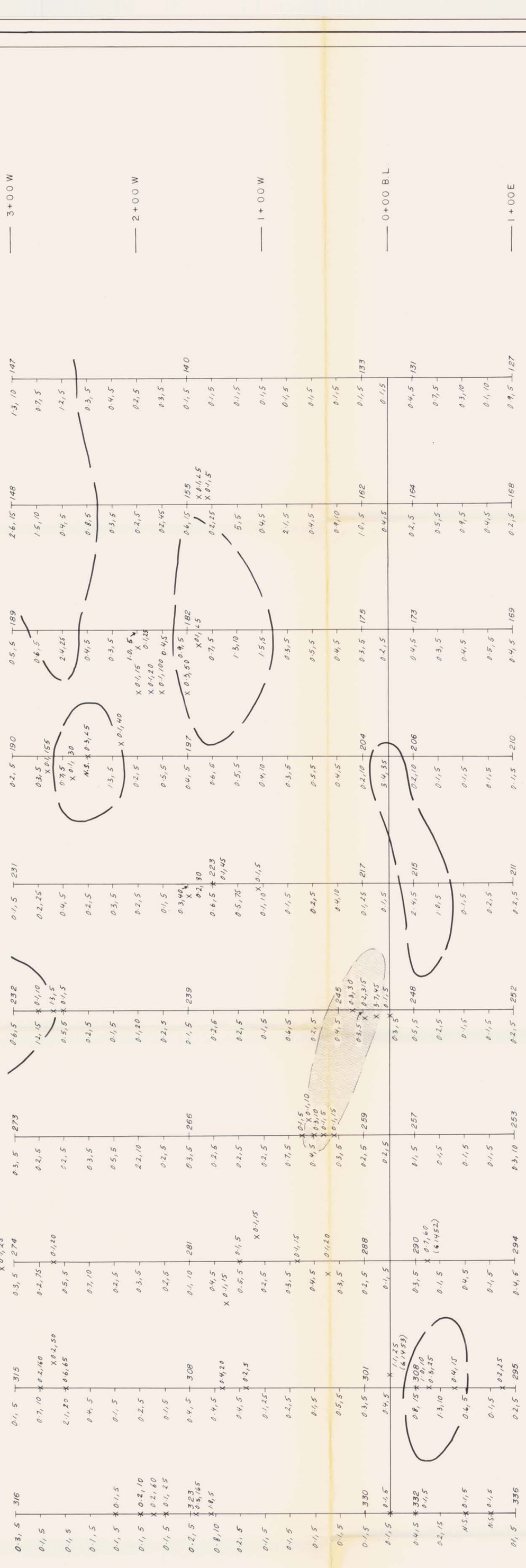
Rio Algom Exploration Inc.

WOLF CLAIMS

GRID I

As, Pb, Zn IN SOILS

DATE	DRAWN BY	DWG.
NOV. 1984.	R.M.C./J.S.	GC 7641



LEGEND

- >0·6 ppm Ag in soil
- Silicified zone (approximate)
- 330 — Soil sample number (prefixed by w)
- 0·8, 5 — ppm Ag, ppb Au in soils
- 0·3, 165 (6 1345) — ppm Ag, ppb Au in rock; 1984 chip sample number

NTS 93/F3

SCALE 1:2000

50 0 50 100 150 Metres

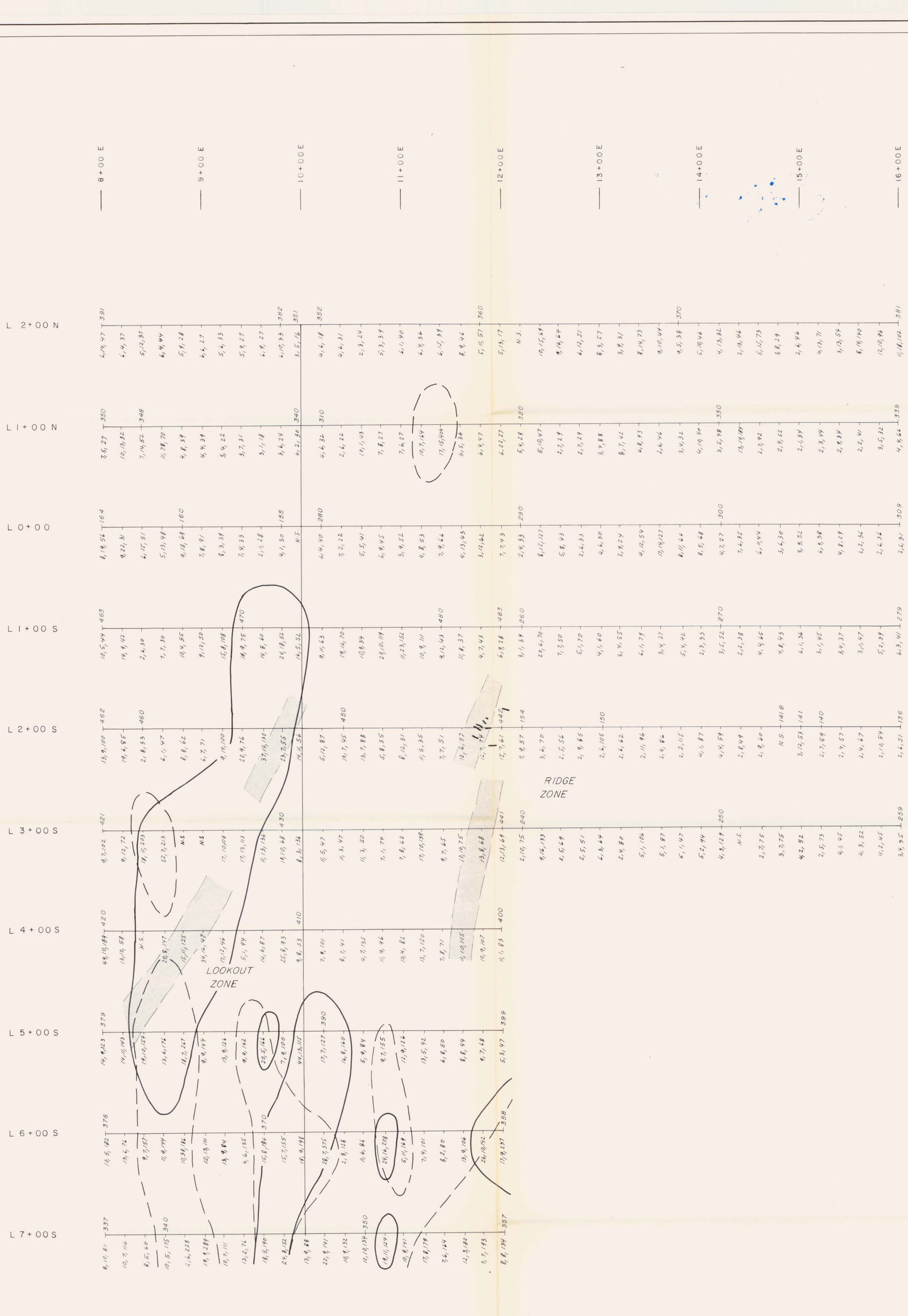
Rio Algom Exploration Inc.

WOLF CLAIMS

GRID 2

Ag, Au IN SOILS & ROCKS

DATE	DRAWN BY	DWG.
NOV. 1984.	R.M.C./J.S.	GC 7642



LEGEND

- >150 ppm Zn
- >15 ppm As
- Silicified zone (approximate)
- Trench
- 219 — Soil sample number (prefixed by w)
- 10, 34, 186 — Soil sample ppm As, ppm Pb, ppm Zn

NTS 93/F 3

SCALE 1:2000

50 0 50 100 150 Metres

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,968

PART 1 OF 3

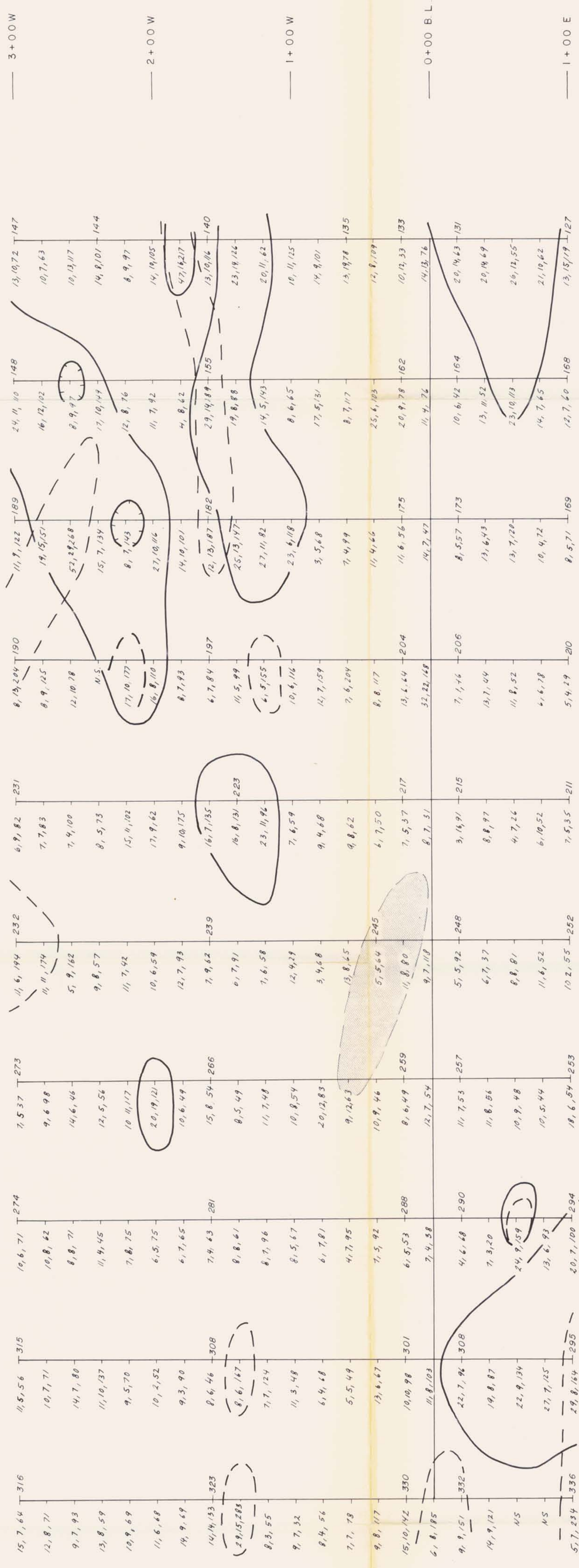
Rio Algom Exploration Inc.

WOLF CLAIMS

GRID 3

As, Pb, Zn IN SOILS

DATE	DRAWN BY	DWG.
NOV. 1984.	R.M.C./J.S.	GC 7645



LEGEND

- >150 ppm Zn
- >15 ppm As
- Silicified zone (approximate)
- 315 — Soil sample number (prefixed by w)
- 10, 7, 71 — ppm As, ppm Pb, ppm Zn in soil

NTS 93/F 3

SCALE 1:2000

50 0 50 100 150 Metres

N

Rio Algom Exploration Inc.

WOLF CLAIMS

GRID 2

As, Pb, Zn IN SOILS

DATE	DRAWN BY	DWG.
NOV. 1984.	R.M.C./ J.S.	GC 7643

8+00 E | 9+00 E | 10+00E | 11+00E | 12+00E | 13+00E | 14+00E | 15+00E | 16+00E

L 2+00 N

L 1+00 N

L 0+00

L 1+00 S

L 2+00 S

L 3+00 S

L 4+00 S

L 5+00 S

L 6+00 S

L 7+00 S

RIDGE ZONE

LOOKOUT ZONE

LEGEND

- >0·6 ppm Ag in soil
- Silicified zone (approximate)
- Trench
- 379 — Soil sample number (prefixed by w)
- 0·4, 5 — Soil sample ppm Ag, ppb Au
- 0·1, 10 / 61305 — Chip sample ppm Ag, ppb Au / 1984 sample number

NTS 93/F 3

SCALE 1:2000

50 0 50 100 150 Metres

Rio Algom Exploration Inc.

WOLF CLAIMS

GRID 3

Ag, Au IN SOILS & ROCKS

DATE	DRAWN BY	DWG.
NOV. 1984.	R.M.C. / J.S.	GC 7644

GRID 1

GRID 2

GRID 3

WOLF

WOLF 3

LCP

Camp

CHOPPER PAD ZONE

RIDGE ZONE

LOOKOUT ZONE

700 N
200 N
00S
400S
900S
0 N
200S
700S

400E
00 E
300 W
800E
1000E
1200E
1400E
1600E

3400
3500
3600
3700
3800
3900
4000
4100

loc. minor sil.
sil, brxx
loc. sil.
loc. sil, brxx, alt
sil.
po
loc. sil. & alt.
G1454
loc. brxx. alt.
G1484 (0 2, 4)
G1485 (0 1, 3)
minor loc. sil.
G1469
minor sil. brxx
py. sil.
G1555 (0 1, 5)
G1553 (0 1, 5)
G1552 (0 3, 5)
G1551 (2 0, 15)
G1554 (0 1, 5)
loc. sil. & brxx.
G1451
loc. brxx
loc. sil
minor sil
loc. alt.
loc. alt. sil.
loc. sil., alt.

LEGEND

EOCENE (?)

- 5 Tan to grey, flow-banded rhyolite - locally spherulitic.
- 4 Fine grained to aphanitic cream coloured ash tuff.
- 3 Grey to green lithic crystal tuff.
- 2 Marroon dacitic crystal tuff.
- 1 Rhyolite porphyry.

- brxx Brecciated
- sil. Silicification and/or qtz. fractures
- py Disseminated pyrite
- alt Alteration
- po Porphyritic
- ch Chalcedony

- G1554 (1 5, 5) Chip sample (outside grids) ppm Ag, ppb Au
- Area of trenching
- Area of chip sampling
- (H) Helicopter pad
- □ Claim post (location not confirmed)

- Flow banding
- Quartz veins
- Fractures
- Fault - assumed

NTS 93F/3
SCALE 1:5000
00 50 0 100 200 300 400 Metres

N

Rio Algom Exploration Inc.

WOLF CLAIMS

GEOLOGY

DATE	DRAWN BY	DWG.
NOV. 1984.	L.H. / J.S.	G 7646