TAK CLAIMS

GERMANSEN LAKE, BRITISH COLUMBIA

NTS: 93N/11E

GEOLOGY, GEOCHEMISTRY, AIRBORNE GEOPHYSICS

1990

Claims: TAK 1-4
Omineca Mining division
55^{o} 43'N, 125^{o} 13'W

Owner/ Operator Rio Algom Exploration Inc
1650, 609 Granville Street
Vancouver BC
V7Y 1G5

G R COPE

January 1991

SUMMARY

The TAK claims are located 155km north-northwest of the town of Fort St James in central British Columbia and are accessible only by helicopter. Year round logging roads pass within ten kilometres of the north and south claim boundaries. The property consists of four contiguous twenty unit claim blocks, in good standing until 1994, which were staked in February 1990 to cover coincident regional magnetic highs, anomalous copper and arsenic in stream sediments and two known copper occurrences in an area underlain by Takla Group volcaniclastic rocks close to the Hogem Batholith. This area was deemed to be a favourable setting in which to explore for porphyry copper-gold deposits.

During the summer of 1990, an airborne magnetic and VLF-EM survey was flown to cover the entire property at 100m line-spacing. Prospecting, reconnaissance geological mapping and rock sampling were carried out in areas above treeline and were successful in locating numerous mineralized zones. Grab samples of altered andesite yielded assays of up to 1.8 g/t gold with 1.53% copper. Dykes and small plugs of leucocratic syenite invade the volcanic rocks in the western and southwestern portions of the property. Both the volcaniclastic rocks and the syenite are cut by narrow dykes of quartz feldspar porphyry. Contour sampling of talus fines in the southwest corner of the property yielded strongly anomalous values for copper and gold.

In order to further assess the extent and grade of copper-gold mineralization, it is proposed that a soil grid covering approximately 85% of the property be installed. This will involve the collection of 3500 soil samples at 50m intervals along 100m spaced lines. Concurrently, the entire property is to be mapped in detail by a team of two geologists. Contingent upon favourable results, it is proposed that targets be covered with an IP survey and, ultimately, drill tested.

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1 INTRODUCTION

This report describes the results of the 1990 exploration programme on the TAK group of mineral claims. The claims were staked by Rio Algom Exploration Inc to cover coincident regional magnetic highs and anomalous stream sediments in an area underlain by Takla Group rocks along the eastern margin of the Hogem Batholith. This area was deemed to be a favourable setting in which to explore for porphyry copper-gold deposits.

To further assess the exploration potential of the claims, the 1990 programme consisted of airborne magnetic and VLF surveys, reconnaissance geological mapping, stream sediment sampling and contour soil sampling. In addition to describing the results of the above surveys, this report provides a description of exploration history in the vicinity of the claims, regional geology and conclusions and recommendations for further work.

2 LOCATION, ACCESS AND TITLE

2.1 Location

The claims are located 155km north-northwest of the town of Fort St James and 15km west of Germansen Lake in central British Columbia (Figure 1). The property lies entirely within the eastern half of NTS map area 93N/11 and is approximately centred at 55^{O} 43'N latitude, 125^{O} 13'W longitude. Topography is characteristic of the Hogem Ranges of the Omineca Mountains and shows considerable variation in ruggedness. Elevations range from a low of 1100m in creek valleys in the north to 2000m along ridge crests in the south. Treeline lies at approximately 1600m.

2.2 Access

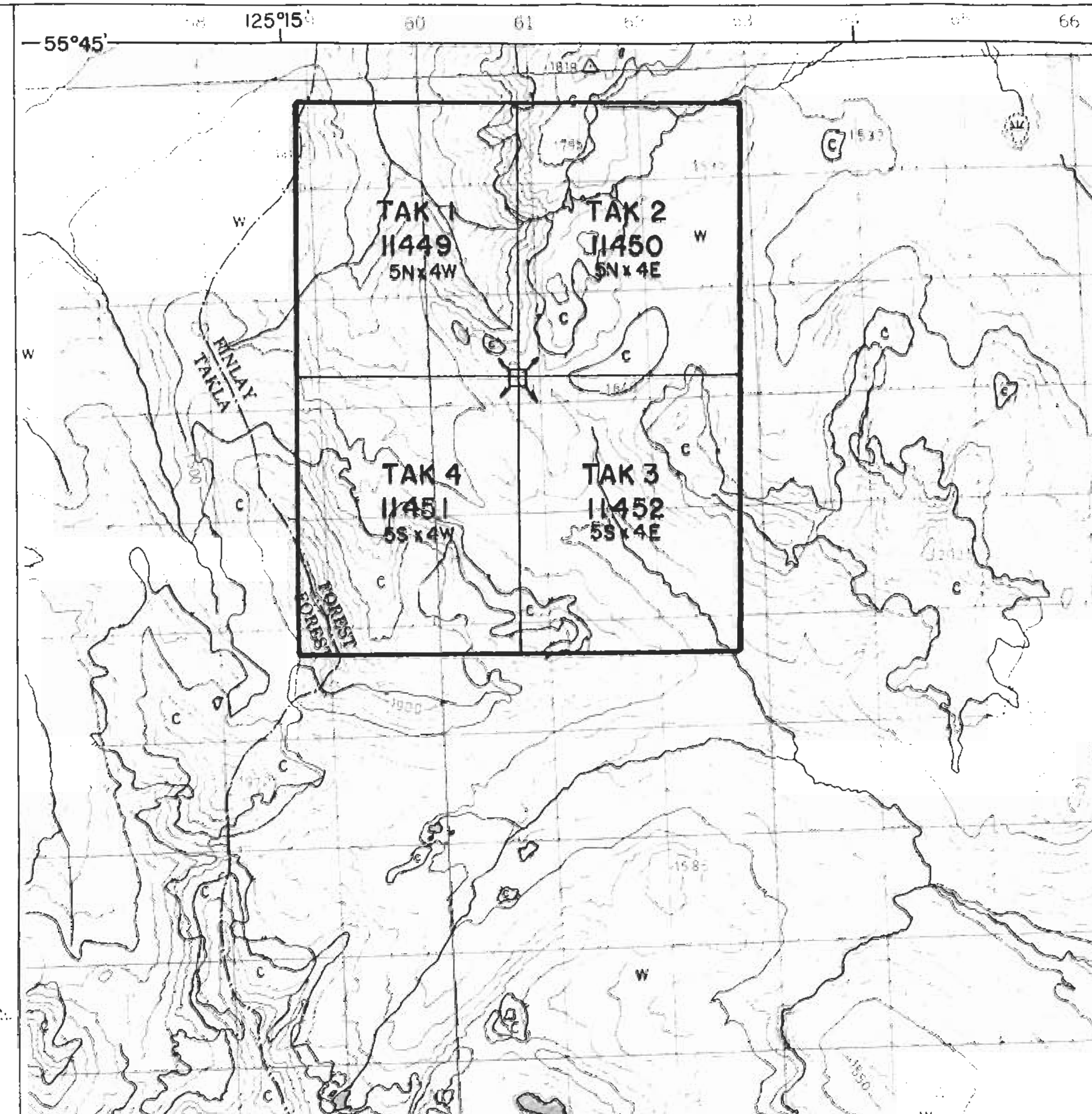
Access to the property is possible by helicopter or by a pack horse trail used to supply Larry Erikson's guide camp in the centre of the claims. For the purposes of the 1990 exploration programme, a staging area was established at the point where the Germansen-Takla Road crosses Twenty Mile Creek from which supplies and personnel were flow 10km in to the property.

2.3 Title

The property consists of four contiguous modified grid claim blocks totalling 80 units (Figure 1). The claims lie entirely within the Omineca Mining Division on mineral titles mapsheet 93N/11E and were grouped as the TAK Group on August 21 1990. The TAK Group is wholly owned by Rio Algom Exploration Inc. Individual claim information is summarized in the following table:

Claim	**Record No:**	**Units**	**Record Date**	**Expiry Date ***
TAK 1	11449	20	Feb 19 1990	Feb 19 1994
TAK 2	11450	20	Feb 19 1990	Feb 19 1994
TAK 3	11451	20	Feb 19 1990	Feb 19 1994
TAK 4	11452	20	Feb 19 1990	Feb 19 1994

*Pending approval of this report.



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Legal corner post

N.T.S. 93N/11E
SCALE 1:50,000

1000 500 0 1000 2000 3000 4000 Metres

Rio Algom Exploration Inc.		
TAK CLAIMS		
LOCATION MAP		
DATE DEC. 1990	DRAWN BY GRC / Chong	DWG. 1

3 HISTORY

Regional geological mapping of the Fort St James area, on a scale of 1 inch to 4 miles, was commenced in 1936 by J E Armstrong of the Geological Survey of Canada. Work by Armstrong and others continued until 1944 and is documented in GSC Memoir 252 (1949). More recently, J A Garnett worked in the northern half of the map area during 1971 to 1975 in an effort to reconcile the various phases of intrusive rock which comprise the Hogem Batholith. Garnett's findings are documented in British Columbia Ministry of Mines Bulletin 70 (1978).

Mineral exploration activity in the immediate vicinity of the TAK claims dates back to at least 1966 when North Star Explorations Ltd held the Bob claims covering showings on Goat Ridge. A report by Gavin Diron documents copper occurrences along Goat Ridge (up to 4.31% Cu) and in the area presently known as the Slide showing (1.43% Cu in float). Kaza Copper Ltd carried out hand trenching on the Slide showing in 1969.

In 1970, following a reconnaissance geochemical programme, Noranda Exploration Co Ltd staked the Loop property immediately to the south of the Bob property. Work in 1971 consisted of reconnaissance mapping, grid installation and widely spaced soil sampling. The soil survey outlined numerous zones of >140ppm Cu and additional work was recommended. A reconnaissance induced polarization survey was conducted over the soil grid lines in 1972 with mixed results. Although no large chargeable zones were delineated, several small zones were detected and marked for follow-up exploration. It is not known whether or not further work was done by Noranda and the Loop claims were eventually allowed to lapse.

Imperial Metals Corporation staked the North Slope claims in 1985 as a result of anomalous geochemistry detected in silts in streams draining the cirque to the west of Goat Ridge. In 1986, two soil grids were established immediately to the west and south of the present TAK claims. A 600m by 600m area of >50ppb Au with locally coincident >200ppm Cu was outlined in soils on the west facing slope of Goat Ridge. Concurrently, the Goat Ridge showings were resampled and high copper and gold values obtained. Additional work was recommended to determine the source of the Cu-Au soil anomaly but again, it is not known if this work was carried out. The North Slope claims lapsed prior to the staking of the current TAK claims.

4 REGIONAL GEOLOGY

The property lies within the early Mesozoic Quesnel belt which includes rocks of the Upper Triassic to Lower Jurassic Takla, Nicola and Stuhini Groups. To the west, deformed uplifted Permian Cache Creek Group rocks are separated from the Quesnel belt by the Pinchi Fault zone. To the east, the Manson fault zone separates this belt from the uplifted Proterozoic/Early Paleozoic Wolverine metamorphic complex and the Mississippian-Permian Slide Mountain Group.

The Quesnel Trough was the site of extensive island-arc volcanic and sedimentary deposition from late Triassic to early Jurassic time. The base of the Quesnel trough is an Upper Triassic black argillite unit. This unit is exposed near the eastern margin of the trough where it commonly overlies ophiolitic rocks of the Slide Mountain Group. The basal black argillite is overlain by a series of augite porphyritic flows, breccias and minor argillites. These rocks are then overlain by a second sequence of argillites and volcaniclastic rocks of Upper Triassic to Lower Jurassic age. Subaerial volcaniclastics in the geologic record indicate that volcanic centres in the trough emerged in early Jurassic time. This is postulated to have occurred in conjunction with the rise and deformation of Omineca Crystalline Belt rocks to the east. Regional metamorphism is of greenschist grade.

Block faulting and tilting are the dominant structural styles in the belt. Faults trend in a northwest and northeast direction. Folding is restricted to the eastern margin of the belt near its structural boundary with the Omineca Crystalline Belt.

Two major episodes of granitic intrusion are recognized along a northwest trending belt slightly oblique to the Quesnel trough. The intrusive events cluster around 100 and 200 million year ages. The 100ma intrusions are of predominantly calcalkaline composition while the 200ma intrusions have both calcalkaline and alkaline affinities.

Porphyry-style mineralization is associated with both intrusive events. Deposits occurring within the 100ma calcalkaline intrusions tend to have high Mo : Cu ratios or are molybdenum porphyries (e g Boss Mountain). Deposits which occur within the 200ma calcalkaline intrusions are generally copper-rich relative to molybdenum (e g

Highland Valley). Porphyry deposits occurring in association with 200ma alkaline intrusions are typically copper-rich with significant gold and negligible molybdenum concentrations (e g Copper Mountain). Within alkaline copper porphyries, the gold concentration may reach a level such that the deposits may be more correctly termed gold porphyries (e g Mount Milligan, Main Deposit - 265 million tonnes grading 0.14% Cu, 0.56 g/t Au).

The southern Hogem Batholith underlies the northwest corner of the TAK claims. Garnett (1978) divides the rocks of the southern Hogem Batholith into three phases which can be separated both compositionally and geochronologically. Phase I rocks have K/Ar dates falling within the limits 176 Ma to 212 Ma and range in composition from diorite to granodiorite. Phase II rocks are exclusively syenites and K/Ar dates fall within the limits 162 Ma to 182 Ma. Phase III granites have been dated at 112 Ma. It is believed that all three phases are present on the TAK Claims.

5 1990 EXPLORATION PROGRAMME

5.1 General

The TAK claims were staked to cover an area which was deemed to have potential to host a copper-gold porphyry system. To assess this potential, the 1990 exploration programme consisted of an airborne magnetic and VLF survey, reconnaissance geological mapping and rock sampling and a contour soil geochemical survey.

Fieldwork was performed during the periods July 12-16 and July 30 to August 5 1990. The programme was supervised and carried out by the writer with the able assistance of Shaun Pattenden and Kathleen Dixon - geologists employed by Rio Algom Exploration Inc on a seasonal basis.

The sections of this report which follow, provide details of the various aspects of the 1990 exploration programme.

5.2 Property Geology

5.2.1 General

Reconnaissance, 1:10,000 scale geological mapping was carried out over most areas above treeline. Limited prospecting in creek drainages was conducted in the course of collecting stream sediment samples. A total of 57 rock samples was collected and subsequently analyzed geochemically for gold and 31 additional elements by inductively coupled argon plasma methods (ICP). Three samples were also assayed for gold, silver and copper. Geology and rock sample locations are shown on Figure 6. Sample descriptions and analytical certificates are located in Appendices II and III respectively.

5.2.2 Lithologies

The property is predominantly underlain by Upper Triassic to Lower Jurassic Takla Group rocks which have been intruded by various phases of the Hogem Batholith. The Takla Group rocks consist primarily of massive, green to dark green, fine-grained, augite porphyritic andesite flows with lesser flow breccia. Euhedral, augite phenocrysts to 8mm commonly comprise 40% of the rock and lie in a fine-grained groundmass. Where the flows are brecciated, fragments comprise up to 60% of the rock and are typically angular, 5-10cm across and surrounded by a matrix of fine-grained andesite. The best exposures of flow breccia are found in the vicinity of Goat Ridge.

Pale to dark grey limestone is exposed in steep bluffs along North Ridge, interbedded with crystal lapilli tuff. The limestone is massive, coarsely crystalline and locally fossiliferous. Fossil varieties include both solitary and colonial corals (scleractinia?) and shell fragments. The crystal lapilli tuff is composed of glassy, subrounded fragments and augite phenocrysts in a fine andesitic matrix. The tuff locally contains limestone fragments.

Green to dark green, fine-grained andesite tuff is exposed in sparse outcrops in the western portion of the property. Based on a single bedding plane measurement, rocks in this area strike north-south with moderate dips to the west.

The Takla Group-Hogem Batholith contact traverses the northwest corner of the property. Here, the intrusive is a medium-grained, hypidiomorphic, granular quartz monzonite. Southeast of the Batholith, the volcanic rocks are invaded by small plugs of pink, coarse-grained leucocratic syenite. The syenite weathers to a buff-orange colour and may be equivalent to Phase II of the Hogem intrusive suite.

Dykes of quartz-feldspar porphyry invade both the syenite plugs and the surrounding volcanic rocks. These dykes are dark grey to grey with 1-3mm subangular phenocrysts of quartz and feldspar comprising 50%. Phenocrysts of feldspar to 1.5cm comprise up to 5%. The bimodal size distribution of the feldspar phenocrysts led to the dykes being identified in the field as "two feldspar porphyries". The quartz feldspar porphyry dykes are tentatively assigned to Phase III of the Hogem intrusive suite.

5.2.3 Alteration

The volcanic rocks exhibit regional greenschist metamorphism. Alteration to epidote increases with proximity to intrusive bodies and is most intense along Goat Ridge. Patchy biotite alteration is present throughout the volcanic rocks in the southwest corner of the claims. Quartz-carbonate veining is also widespread in this area. The Hogem quartz monzonite in the northwest corner of the claims is argillically altered.

5.2.4 Mineralization

Traces of fine disseminated pyrite are ubiquitous in the volcanic rocks. Goat Ridge is conspicuous by its well-developed gossan due to weathering of disseminated pyrite. Chalcopyrite mineralization is best exposed on the TAK 4 claim and tends to be associated with faults/fractures and intrusive bodies. Within a few metres of these features, chalcopyrite may be present as disseminations, stringers and fracture fillings to 5%. Silver and gold exhibit a strong association with copper. The following table lists the results of selected grab samples collected in and around the cirque bounded by Goat Ridge.

Sample No:	Cu %	Au g/t	Ag g/t
10126	2.150	0.16	25.2
10129	1.530	1.80	42.0
10243	0.659	0.25	6.2
	ppm	**ppb**	**ppm**
10140	10041	875	18.2
10183	5113	347	18.2
10193	12045	1450	11.4

5.3 Soil Geochemistry

5.3.1 Sampling Method, Preparation and Analyses

A total of 97 soil samples was collected along the flanks of Goat Ridge and within the cirque. The area of coverage is indicated on Figure 6 and sample sites and analyses for gold, silver, copper and molybdenum are plotted on Figure 7 at a scale of 1:2500. Soil samples were collected at each site with the aid of a mattock. Due to the steep slopes in the cirque, many of the samples consisted primarily of talus fines. Elsewhere in the survey area, the "B" horizon was collected. All samples were placed in Kraft bags and air-dried prior to shipment to Acme Analytical Laboratory in Vancouver where the soil was screened to -80 mesh. A 0.5g sub-sample of the -80 mesh material was analyzed for 30 elements by inductively coupled argon plasma methods (ICP). A 10.0g sub-sample of the -80 mesh fraction was digested with hot aqua regia and analyzed for gold by graphite furnace atomic absorption. Analytical certificates listing results for each element may be found in Appendix III.

5.3.2 Results

Due to the small sample population, a rigorous statistical analysis of the analytical results has not been attempted. Based on experience from other properties in the Takla Group, the following thresholds of anomalous values are assigned:

Gold	35 ppb
Silver	1.0 ppm
Copper	120 ppm
Molybdenum	15 ppm

Using these thresholds, nearly all of the samples collected in the cirque and along the surrounding ridge are anomalous in two or more elements. Most frequently, the anomalous elements include gold and copper and less frequently, molybdenum. Silver is not particularly anomalous which is surprising considering the high silver in rock analyses in this area.

The central north-south trending line of samples exhibits a sharp break at its approximate midpoint, north of which the soils are not anomalous. This may be indicative of thick talus cover or weaker mineralization.

5.4 Stream Sediment Geochemistry

5.4.1 Sampling Method

Twelve stream sediment samples were collected in the course of geological mapping. A 1-2 kilogram sample of the finest sediment available at each site was placed in a plastic bag and sealed for shipment to Min-En Laboratories in North Vancouver. On arrival at the laboratory, the samples were dried, sieved to -80 mesh and analyzed for gold and by 31 element ICP as described in section 5.3.1. Sample descriptions and analytical certificates may be found in appendices II and III respectively.

5.4.2 Results

Sample locations are indicated on Figure 6. Three of the twelve samples yielded analyses of greater than or equal to 20ppb Au (GCS32: 45ppb Au; GCS33 20ppb Au; GCS35 57ppb AU). In addition, sample GCS32 contained 1.2ppm Ag and 20pm As. All three of these samples are from streams draining the centre of the claim block - an area of poor bedrock exposure.

The highest copper analysis was obtained from sample SP070 (171ppm) which was collected from a stream draining Goat Ridge.

Interestingly, none of the streams draining areas with known gold mineralization were anomalous for gold.

5.5 Airborne Magnetic and VLF Survey

5.5.1 General

Under contract to Rio Algom, Aerodat Limited conducted a 300 line kilometre helicopter borne magnetic and VLF survey covering the entire claim block. Details of the specific methodology of the survey and the equipment used are provided in a report by Aerodat Limited in Appendix IV. The purpose of the airborne survey was to assist in identification of structural features and to outline areas of possible unmapped intrusive bodies. Flight path, total field magnetics, calculated vertical magnetic gradient and VLF-EM total field data are presented on Figure 2 through 5 at a scale of 1:10,000.

5.5.2 Results

The calculated magnetic gradient data exhibits a chaotic distribution of magnetic highs and lows with no suggestion of an underlying structural grain.

The VLF-EM total field data reflect property topography which is highly variable. It is possible that some of the VLF-EM lows are associated with structures but any structure would be overshadowed by topographic effects.

The total field magnetic data also exhibits a strong correlation with topography. Magnetic highs and lows are shown on Figure 6. The large magnetic high along the western claim boundary closely parallels the Hogem-Takla contact and is, in part, independent of topography.

The large magnetic high with an enclosed magnetic low in the eastern portion of the property is entirely coincident with topographic highs. Rocks in this area are weakly magnetic and the magnetic low near the eastern claim boundary may reflect destruction of magnetite due to alteration. A pyritic gossan within the magnetic low yielded background geochemical values.

Magnetic highs over Middle and South ridges are associated with syenite plugs. Similar oval-shaped magnetic highs located north and south of Middle Ridge do not appear to be related to topography and may indicate buried syenite plugs.

6 CONCLUSIONS

The TAK claims are predominantly underlain by Takla Group andesite flows and flow breccias which have been invaded by three intrusive phases associated with the Hogem Batholith. Syenite plugs and quartz feldspar porphyry dykes are spatially associated with disseminated and stringer chalcopyrite mineralization in the surrounding volcanic rocks. The chalcopyrite mineralization is localized along faults and fractures and reaches concentrations of up to 5% in hand samples. Gold and silver grades increase with chalcopyrite content.

Soil samples, anomalous in gold, copper and molybdenum, collected in the southwest corner of the property may indicate that porphyry-style mineralization is more widespread than presently indicated. Similarly, stream sediment geochemistry suggests a gold-enriched zone in the centre of the property - an area of poor bedrock exposure.

Airborne magnetic surveys outlined the known intrusive bodies and at least two buried intrusives are suggested by the data.

The TAK claims exhibit good potential to host additional mineralization and a comprehensive exploration programme, involving detailed geological mapping and sampling, soil geochemistry sampling and trenching is recommended.

7 RECOMMENDATIONS

In order to further assess the extent and grade of copper-gold mineralization, it is proposed that a soil grid covering approximately 85% of the property be installed. Roughly 3500 soil samples should be collected at 50 metre intervals along 100 metre spaced lines. Concurrently, the entire property would be mapped in detail by a team of two geologists. Trenching is to be carried out to allow chip sampling of areas of mineralization. The cost of the above programme is estimated to be $135,000. Contingent on favourable results, it is proposed that targets be covered with an IP survey and ultimately, drill tested.

8 REFERENCES

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Taylor, A B (1986) Gorc, D	Geochemistry and Geology of the North Slope Claims; B C Ministry of Energy Mines and Petroleum Resources Assessment Report 15,652.

9 STATEMENT OF QUALIFICATIONS

I, Graham R Cope do hereby certify that:

1 I am a graduate of the University of British Columbia with a Bachelor of Science degree (1985) in geology.

2 I have been involved in mineral exploration for the past ten years and have practiced my profession as a geologist continually since graduation.

3 I presently hold the position of Geologist with Rio Algom Exploration Inc with offices at 1650, 609 Granville Street, Vancouver, British Columbia.

4 I am an associate of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.

5 I personally supervised the exploration programme conducted on the TAK property in July and August 1990.

Graham R Cope
Vancouver, January 1991

APPENDIX I

COST STATEMENT

APPENDIX I - COST STATEMENT

Personnel:

G R Cope (Project Manager):		
24 days @ $163.59/day	$3,926.12	
S Pattenden (Geologist):		
11 days @ $135/day	1,485.00	
K Dixon (Geologist)		
11 days @ $105/day	1,155.00	
Total		$6,566.12
Benefits @ 15% of $6,566.12		984.92

Disbursements:

Northern Mountain Helicopters		
(5.9 hrs @ $650/hr		3,835.00
Aerodat Limited		
(300km @ $46.75/km)		14,025.00
Acme Analytical Labs:		
97 soils @ 7.79 e@		755.93
Min-En Labs:		
57 rocks @ $17.00 e@	969.00	
3 rocks @ $19.50 e@	58.50	
12 silts @ $14.50 e@	174.00	
		1,201.50
Groceries		585.00
Accommodation		$ 492.00
TOTAL		**$28,445.47**

Work to be applied:

$6,000 to each of TAK 1, 2, 3 and 4 = $24,000.00

APPENDIX II

ROCK AND SILT SAMPLE DESCRIPTIONS

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10124 (850m SSW of LCP)	**Augite Porphyry** Mottled dark green and green. Augite phenocrysts are euhedral and comprise 40%. Moderate to strong epidote alteration, moderately chloritized. Patchy pink K-spar alteration. Moderately magnetic, trace fine disseminated pyrite.	1	0.2	51	1 As
10125 (850m SSW of LCP)	**Augite Porphyry** Dark green augite phenocrysts to 4mm, euhedral, comprise 40%. Moderate epidote alteration, moderately chloritized. Weakly magnetic. Pyrite in fractures comprises <=5%. Very rusty, weathered surfaces.	3	1.1	50	1 As
10126 (Slide Showing)	**Andesite** Medium green, fine-grained andesite, weakly layered. Probable subcrop poking through talus on edge of talus chute. Moderate K-spar alteration +/- bioite. Disseminated and stringer chalcopyrite comprises up to 5%. 1mm quartz veinlet cuts sample. 5% pyrite as fracture fillings. Rusty weathered surfaces.	144 0.16g/t	24.8 25.2g/t	18310 2.150%	27 As 412 Zn
10127 (Slide Showing)	**Quartz Vein in Andesite** 2cm wide, vuggy quartz vein cuts fine-grained andesite. Vein is deeply weathered with rusty coatings. Pyrite is disseminated in the vein to 5%. Host andesite is dark green, fine-grained, moderately epidotized. Sample is 50% vein, 50% host. Andesite contains trace chalcopyite and 1% disseminated pyrite.	219	0.9	293	6 As
10128 (Goat Ridge)	**Quartz Vein** Coarse grained, vuggy quartz breccia vein, rusty crystal faces. Vein cuts fine-grained augite porphyry. Vein is poorly exposed on top of saddle ridge. Rubble covers a 5m x 5m area. Sample is 90% vein.	4	0.1	84	14 As
10129 (Goat Ridge)	**Hybrid Intrusive** Pale green, fine to medium gained, intensely epidotized hybrid intrusive (?). Up to 5% chalcopyrite in semi-massive pods (1-2cm) and disseminated. Malachite and azurite staining. Rusty fracture surfaces.	1620 1.80g/t	40.5 42.0g/t	12842 1.530%	7 As
10130 (Goat Ridge)	**Diorite** Pale grey-green, medium grained, granular, moderate to strong epidote alteration. 5-10% finely disseminated pyrite. Rusty weathered surfaces. Trace chalcopyrite.	21	1.5	216	18 As

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10131 (Goat Ridge)	**Augite Porphyry** Dark green, medium-grained, augite phenocrysts to 2mm comprise 50%. Fractures are malachite stained. Host is unmineralized.	118	1.1	1637	6 As
10132 (Clearing 350m NW of LCP)	**Carbonate Breccia Vein** Pale brown, anastomosing, 1cm carbonate-quartz veins, cutting augite porphyry. Veins are barren. Host rock is bleached with 5% disseminated pyrite, trace chalcopyrite.	16	1.5	71	49 As 21 Mo
10133 (Clearing 350m NW of LCP)	**Augite Porphyry** Dark green, fine-grained, augite phenocrysts to 5mm comprise 40%. 5% pyrite in 1-2mm disseminated cubes. Rusty weathered surfaces.	2	1.7	171	1 As
10134 (Clearing 350m NW of LCP)	**Augite Porphyry** Pale green to green, fine-grained. Augite phenocrysts to 8mm comprise 30%. Matrix is very fine-grained, weakly siliceous with 5-10% very fine disseminated pyrite. Pyrrhotite associated with strongest silicification. Very rusty weathered surfaces.	15	1.9	206	1 As
10135 (Clearing 350m NW of LCP)	**Augite Porphyry** Intensely weathered/rusty, chloritized. 20% semi- massive pyrite. Abundant limonite. Probably a discrete pod measuring 5cm x 5cm x 5cm	22	1.3	456	59 As
10136 (Clearing 350m NW of LCP)	**Breccia Vein** Mottled tan-green-maroon. Quartz-carbonate veinlets 1-2mm wide, crosscut one another. The host rock is mostly massive specular hematite which may have been a pre-existing breccia. Overall, chastic network of quartz-carbonate breccia veins cutting pre-existing hematite (altered magnetite?) breccia in augite porphyry.	9	0.8	31	17 As
10137 (500m SW of LCP)	**Augite Porphyry** Fine-grained, grey green augite porphyritic andesite. Augite phenocryts to 4mm comprise 20%. 10% very fine to fine disseminated pyrite. Rusty weathered surfaces.	4	1.1	189	2 As
10138 (South Ridge)	**Andesite** Dark green, fine-grained, cut by two syenite dykelets, 2mm and 1cm wide. Host andesite is hornfelsed, strongly magnetic (magnetite) and moderately epidotized. Trace chalcopyrite in host andesite and in dykelets.	6	0.6	147	8 As

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10139 (South Ridge)	**Andesite** Dark green, fine-grained, hornfelsed, collected proximal to syenite contact. Moderate epidote alteration, strongly magnetic (magnetite).	3	0.8	12	19 As
10140 (Slide Ridge)	**Andesite** Dark green, fine-grained (tuff?), massive. 3% disseminated and fracture pyrite. Malachite and azurite stain on fractures. Sample is weakly epidotized (pervasive). Rusty weathered.	875	18.2	10041	10 As
10141 (Slide Ridge)	**Crystal Tuff** Grey-green, medium-grained, andesite Sample is approximately 50% rounded to subangular plagioclase phenocrysts, 1-3mm, 40% 1mm epidote veinlets, 1% disseminated pyrite, <=0.5% disseminated chalcopyrite, trace magnetite, trace malachite.	202	5.1	2586	1 As
10142 (TAK 1)	**Silt** Creek is 1m wide, 5-10cm deep, moderate rate of flow. Sediment is fine sand and silt, rusty brown, no organics.	62	1.0	150	1 As
10143 (TAK 1)	**Quartz Vein** 2cm vuggy quartz vein with massive pyrite selvages cuts quartz monzonite. Vein comprises 30% of sample, pyrite comprises 5%.	21	0.7	237	1 As
10144 (TAK 1)	**Quartz Monzonite** Medium-grained, pale pink. Moderately argillically altered (kaolinite, chlorite) tan to rusty brown weathered. 1-2% disseminated pyrite, locally after hornblende with chlorite.	1	0.8	158	1 As
10175 East of Goat Ridge - 1750m)	**Altered Andesite** Brownish grey on weathered surface, grey on fresh. Rock is a medium-grained volcanic with occasional augite phenocrysts visible. Mineralization and alteration has obscured most of the primary texture. 0.5% pyrite.	7	1.1	209	7 As
10176 Goat Ridge - Elev 1950m)	**Quartz Vein** Milky and slightly smokey quartz vein 3-5cm wide. Quartz is massive or cockade textured. Occasional micro fractures within the vein are filled with rusty iron oxides, very minor chalcopyrite, rare galena and possibly sphalerite. One 3mm diameter aggregate of chalcopyrite is also present within the quartz. Patches of very fine-grained chlorite are also present.	1	0.6	179	30 As 84 Pb 8 Zn

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10177 Goat Ridge – Elev 1980m)	**Augite Porphyry Breccia** Rock is epidote green on weathered surface as well as on broken surface. Original breccia texture obscured by alteration. Epidote and quartz are patchy and semi-pervasive. Patchy Fe-oxides and green malachite staining also present. 3% combined pyrite and chalcopyrite.	5	2.1	545	33 As
10178 Goat Ridge – Elev 1870m)	**Altered Andesite** Very rusty with abundant carbonate in occasional stringers. Sample is from contact zone of volcanics and quartz feldspar porphyry dyke cutting volcanics. No sulphides visible.	2	0.4	12	14 As
10179 Goat Ridge – Elev 1765m)	**Quartz Carbonate Vein** 4cm wide ribbon textured. No sulphides visible but sample contains abundant fe-oxides.	2	0.3	6	41 As
10180 North Ridge – Elev 1715m)	**Altered Limestone** Rusty weathering, grey on fresh. Fossiliferous limestone with abundant iron oxides and trace disseminated pyrite.	1	2.2	20	61 As
10181 North Ridge – Elev 1725m)	**Augite Porphyry** Extremely iron oxide altered volcanic, although alteration is mostly confined to fracture surfaces. No sulphides visible.	2	2.0	61	1 As
10182 East Ridge – Elev 1700m)	**Augite Porphyry** Rusty on weathered surface, green on fresh. Pyroxene phenocrysts altered to epidote or replaced by iron-oxides. No sulphides visible.	2	2.3	90	1 As
10183 (Cirque Elev 1660m)	**Augite Porphyry** Light grey and dark greyish green on fresh, medium-grained. Malachite coatings quite obvious on weathered and fresh surfaces. 2% chalcopyrite in fine to medium grained disseminations and in occasional veinlets approx 1mm wide, as well as in patchy aggregates up to 2cm wide.	347	18.2	5113	1 As
10184 (Cirque Elev 1765m)	**Feldspar Hornblende Porphyry** Rusty on weathered surfaces, light greyish green on fresh. Visible feldspar showing some green alteration (epidote?) as well as the fine-grained groundmass. Contains approximately 3% fine-grained disseminated pyrite and possible chalcopyrite.	1	1.1	213	1 As

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10185 (Cirque Elev 1755m)	**Crystal Tuff** Rusty on weathered surface, finely mottled light and dark green on fresh surface. Fine to medium grained, massive consists of approximately 2% dark green augite crystals. Feldspar crystals are mostly light green (epidotized?) and indistinct. Approx 2% fine-grained disseminated pyrite.	1	1.6	578	1 As
10186 (Cirque Elev 1945m)	**Augite Porphyry** Whitish coatings on some fracture surfaces, including chlorite. Dark green, fine to medium grained on fresh surface. Minor amounts of copper staining and Fe-oxides on fracture surfaces.	3	3.8	1723	1 As
10187 (Cirque Elev 1935m)	**Carbonate Vein** Rusty on weathered and fresh surfaces. No sulphides visible.	18	1.9	473	1 As
10188 (Cirque Elev 1935m)	**Augite Crystal Lapilli Tuff** Rock is coated with abundant malachite and minor azurite as well as abundant Fe-oxides and some epidote. Predominantly green augite crystals and up to 1cm long green lapilli (30-50% and 15% respectively) and is crudely layered. Malachite staining is as fracture coatings and minor disseminations in rock.	87	4.7	4853	1 As
10189 (Cirque Elev 1840m)	**Feldspar Crystal Tuff** Rusty on weathered surface, dark green/grey on fresh surface. Contains approximately 10-20% white and pale green subhedral feldspar pheno-crysts in mottled dark green and white fine-grained groundmass. Minor malachite staining in a 1cm wide medium crysaline epidote vein.	37	3.1	2688	1 As
10190 (Cirque Elev 1780m)	**Augite Porphyry** Very rusty on weathered surfaces, light to dark green on fresh. Pedominantly fine-grained but augite porphyry in immediate vicinity of this sample. 0.5-1% disseminated pyrite.	1	0.4	170	1 As
10191 (Cirque SW)	**Crystal Lapilli Tuff** Predominantly rusty on fracture surfaces, dark and light green on fresh surfaces. Contains approx 30-50% fine to medium grained white or very pale green (altered) feldspar phenocrysts, euhedral to subhedral. 10-25% very dark green augite crystals and 2-5% dark green lapilli (very fine-grained) up to 1cm. Groundmass (20-30%) is fine-grained and dark green. 1-2% pyrite in minor tiny veinlets, patchy epidote.	1	0.5	137	1 As

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10192 (Cirque NW Elev: 1680m)	**Feldspar Porphyry** 5-10% dark green/black rounded pyroxene/ hornblende xenoliths up to 30cm diameter. Rock is grey or occasionally rusty on weathered surfaces, light grey/green on fresh, moderate to strongly magnetic, usually consists of 10-15% creamy to very pale green feldspar phenocrysts, averaging 0.2cm diameter and up to 1cm diameter. Groundmass is dark grey, fine-grained and consists of mafics and approx 1% fine-grained disseminated magnetite. Groundmass occasionally weakly epidotized, minor copper staining and disseminated chalcopyrite on fracture surfaces.	1	1.4	308	1 As
10193 (Cirque NW Elev: 1662m)	**Crystal Tuff** Dark green, fine to medium grained, well bedded. Malachite staining on fracture surfaces, probably associated with local chalcopyrite-K-feldspar, chlorite veins.	1450	11.4	12045	1 As
10194 (South Ridge Elev: 1705m)	**Feldspar Porphyry** Moderately rusty on weathered surfaces, dark grey on fresh. Consists of 3% off-white plagioclase phenocrysts, 1cm long and 10% plagioclase phenocrysts averaging 0.2cm long. Groundmass is very fine-grained and dark grey. 3% fine to medium grained disseminated pyrite and possibly chalcopyrite (sulphides often tarnished to resemble chalcopyrite).	1	1.3	459	1 As
10195 (Slide Ridge Elev: 1765m)	**Augite Porphyry** Dark green, angular boulder, medium-grained contains 0.5-1% pyrite as fracture coatings and as minor disseminations.	1	1.4	222	1 As
10239 (Slide Ridge)	**Augite Porphyry** Very dark green, augite porphyritic. Mild epidote alteration. Blebs of pyrite and chalcopyrite. Moderately magnetic. Cross- cutting calcite veinlets. Cut by feldspar quartz prophyry dykes.	1	2.1	274	12 As 15 Mo
10240 (Goat Ridge)	**Augite Porphyry** Green augite crystals <2mm. Aphanitic matrix. Rust and pyrite on fractures. Small amount of alteration (chlorite?). Epidote crystals.	1	2.1	494	1 As
10241 (Goat Ridge)	**Augite Porphyry** Very rusty. Trace malachite. Augite crystals are small and less noticeable. Trace pyrite and chalcopyrite. Abundant epidote on fractures.	2	1.9	341	6 As

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10242 (Goat Ridge)	**Augite Porphyry** Trace pyrite and chalcopyrite. Malachite staining on fracture surfaces. Some rust on fractures. Augite <1mm. Finely disseminated chalcopyrite with malachite, moderately magnetic.	31	3.9	2463	13 As
10243 (Goat Ridge NE)	**Augite Porphyry** Euhedral crytals <1mm. Aphanitic matrix. Malachite and rust on fractures. Finely disseminated pyrite and chalcopyrite on fresh surface. Augite has slight epidote alteration. Slightly magnetic. MnO staining present.	208 0.25g/t	6.9 6.2g/t	5509 0.659%	20 As
10244 (NE of LCP, Creek N)	**Silt** Coarse gravel with fines, very little silt in stream. Stream is 0.5m wide and mostly moss covered. Few boulders, not very organic.	1	0.4	65	1 As
10245 (NE of LCP Creek)	**Silt** Sample taken at inflow to pond. More grit than silt, some fines present, moderate flow.	2	0.8	42	1 As
10246 (NE Wall of Cirque TAK)	**Altered Volcanic** Heterogeneous textures and compositions ranging from fine-grained green/black to medium-grained feldspar rich areas. Rock has overprinting brown biotite and pink feldspar (K-spar) grains - potassic alteration. Mineralization is weak and consists of pyrite stringers and rust covered fracture fillings. Rock is marginally magnetic all over. Sulphides make up <1% of rock. Some epidote and chlorite are present.	1	1.1	99	1 As
10247 (NE Wall of Cirque TAK)	**Altered Volcanic** Heterogeneous texture and composition, ranging from fine-grained dark green/black volcanics to medium-grained feldspar rich "diorite" like areas, all in an area of <10cm. Epidote stringers and blebs are prevelant and associated with pyrite mineralization. Some pink K-spar is present near pyrite minerals and epidote in small overprinting crystals. Mineralization is pyrite, pyrrhotite + chalcopyrite, no malachite was seen.	1	1.7	385	1 As
10248 (NE Wall of Cirque TAK)	**Crystal Tuff** Medium to fine-grained grey green rock containing visible hornblende crystals. Rock looks highly silicified. Some K-spar grains and overprinting by epidote and chlorite. Mineralization includes 1% clots of pyrite and disseminated pyrite with rust.	1	0.7	32	1 As

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10249 (NE Wall of Cirque TAK)	**Augite Porphyry** Dark to medium green with sporadic blebs of epidote between the large green euhedral augite crystals. Whitish feldspar crystals in matrix. Mineralization is disseminated and as clots consisting primarily of pyrite and hematite (specular). Some pyrrhotite and chalcopyrite may be present.	1	0.5	78	1 As
10250 (NE end of Cirque TAK)	**Altered Volcanic** Heterogeneous texture and composition, ranging from fine-grained dark green blebs to medium-grained feldspar rich 'diorite' like areas. Rock is pervasively propylitically altered with some potassic (phlogopite) alteration on fracture surfaces. Mineralization includes large blebs of pyrite with lesser amounts of pyrrhotite and chalcopyrite. The sulphides show moderate magnetism and are surrounded by epidote and rusty halos. Traces of disseminated pyrite. Pyrite is large and euhedral in places, associated with minor quartz veining. 3–5% sulphides.	345	1.7	784	235 As
10251 (NE Wall of Cirque)	**Quartz Vein** White quartz vein with rusty ribbons containing marginal pyrite and chalcopyrite. Quartz is milky and does not appear to have any crystal growth direction.	72	0.7	35	35 As
10252 (NE Wall of Cirque)	**Crystal Lapilli Tuff** Medium to fine-grained. Lapilli are marginally darker with similar grain size of crystals. Edges of lapilli appear to be partially assimilated. Lapilli crystals are more euhedral than matrix crystals. Mineralization is mostly in fractures with some pyrite disseminated in rock. Pyrite is in greatest abundance with trace amounts of pyrrhotite + chalcopyrite. Rusty fractures.	19	0.7	28	1 As
10253 (NE Wall of Cirque)	**Augite Porphyry** Grey with greenish tinge. Small augite crystals visible. Fine- grained feldspar crystals visible near weathered margins. Epidote and chlorite visible in small amounts and associated with pyrite clots. Mineralization is primarily pyrite in disseminated form with some clots as well. Pyrrhotite or magnetite may be present. Trace chalcopyrite.	1	0.8	62	1 As

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
10254 (SE Wall of Cirque)	Crystal Tuff Light grey with very fine-grained hornblende crystals. Epidote pods and stringers give rock light green tinge. Rock grades into coarser hornblende porphyry on margins but hornblende are chloritized. Mineralization is fine-grained disseminated pyrite throughout with some stringers visible. Pyrrhotite trace, no chalcopyrite visible. Sulphides make up 1% of rock composition.	1	0.4	80	1 As
10255 (Below Slide Showing)	Augite Porphyry Very rusty, light grey siliceous rock containing carbonate stringers. Mineralization in veins is disseminated to semi-massive in places. Mostly pyrite with some chalcopyrite. In the augite porphyry, mineralization is in stringers which appear to originate in the vein. Malachite staining in small amounts is present along with rust.	1	2.2	1428	152 As 393 Sb
10256 (East end of South Ridge)	Augite Porphyry Black with epidotized areas. Augite makes up most of rock and appears to be fresh and euhedral. Rock has cross-cutting veins of K-feldspar (on fracture surface) and abundant rust. Mineralization is disseminated and >10% on fracture surfaces. Mostly pyrite with lesser amounts of pyrrhotite.	18	1.0	248	1 As
GCS30 (TAK 1)	Silt Stream is 3m wide, 20cm deep, high volume. Sediment is clean fine sand and silt. Boulders in creek to 40cm include intrusive and volcanic rocks.	1	0.1	10	1 As
GCS31 (TAK 1)	Silt Stream is 40cm wide, 10cm deep, fast flowing. Sediment is fine to coarse sand and fine gravel. Mossy banks.	3	0.8	86	1 As
GCS32 (TAK 1)	Silt Stream is 1m wide, 5cm deep, gentle flowing. Sediment is clean, fined snad and wilt. Boulders in creek to 80cm are predominantly intrusive.	45	1.2	88	20 As
GCS33 (TAK 1)	Silt Stream is 1m wide, 8cm deep, moderate to gentle flowing. Sediment is very fined snd and silt with 10% organic matter.	20	0.4	99	1 As
GCS34 (TAK 1)	Silt Stream is 2m wide, 5-10cm deep, fast flowing. Stream bed mainly boulders (40% intrusive, 60% volcanic). Sample is fine silt from edge of stream.	3	0.5	116	6 As

Sample No: (Location)	Description	Au (ppb)	Ag (ppm)	Cu (ppm)	Other (ppm)
GCS35 (TAK 1)	Silt Stream is 1m wide, 10cm deep, moderate to fast flowing. Stream bed is mainly cobbles of augite porphyry with lesser intrusive. Sample is coarse silt to fine gravel.	57	0.4	63	1 As
SP070 (TAK 1)	Silt Stream is 2.5m wide, 25cm deep, fast flowing. Sediment is brown, fine sand.	2	0.7	171	1 As
SP071 (TAK 1)	Silt Stream is 1m wide, 25cm deep, fast flowing. Sediment is grey, 40% medium to coarse sand, 60% fine gravel.	1	0.5	56	11 As
SP072 (TAK 1)	Silt Stream is a series of deep (50cm) narrow (40cm) channels and pools (40cm deep, 2–4m wide). Sediment is brown, 30% coarse sand, 50% medium sand, 15% fine sand and 5% organics.	1	0.4	39	1 As

APPENDIX III

ANALYTICAL CERTIFICATES

COMP: RIO ALGOM EXPLORATION INC.
PROJ: TAK 9015
ATTN: G.COPE

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 0V-0943-RJ1
DATE: 90/07/24
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
10124	.2	10490	1	1	21	.2	3	10660	.1	12	51	25510	950	12	9690	551	1	410	3	1530	27	1	19	1	1	94.4	53	1	2	1	31	1
10125	1.1	10460	1	1	52	.1	7	9380	.1	25	50	36160	1720	7	11450	261	1	460	8	1030	23	1	14	1	1	83.0	23	1	2	1	45	3
10126	24.8	8550	27	1	60	1.0	7	51340	17.1	24	18310	44410	4280	19	14620	1076	7	230	46	1970	64	18	29	1	1	161.7	412	1	1	2	128	144
10127	.9	9740	6	1	31	.3	3	7340	.1	10	293	33380	5120	8	5830	358	6	680	1	930	29	1	14	1	1	88.4	61	1	1	1	54	219
10128	.1	8760	14	1	17	.4	1	2630	.1	9	84	26800	800	6	6670	211	6	180	4	700	25	1	7	1	1	39.8	33	1	1	1	84	4
10129	40.5	6840	7	1	21	.1	7	12650	.1	10	12842	42560	1410	2	3220	214	1	330	1	1550	42	8	26	1	1	57.7	67	1	1	1	25	1620
10130	1.5	6880	18	1	8	.1	5	10620	.1	21	216	32950	500	4	6600	177	3	300	7	2670	25	1	25	1	1	63.0	22	1	1	1	40	21
10131	1.1	7560	6	1	9	.1	4	10570	.1	13	1637	39340	900	4	6880	263	1	540	1	1590	27	1	17	1	1	151.0	26	1	1	1	31	118
10132	1.5	3790	49	1	469	.5	3	79720	.1	16	71	44090	1550	2	42440	2037	21	110	22	460	38	2	24	1	1	100.6	46	1	2	1	21	16
10133	1.7	18590	1	1	30	.1	7	23200	.1	34	171	49360	2120	18	23570	753	1	610	64	830	28	1	11	1	1	134.5	45	1	1	1	103	2
10134	1.9	11110	1	1	16	.1	9	14040	.1	47	206	52470	1080	8	12380	364	1	460	126	960	25	1	3	1	1	113.6	19	1	1	1	81	15
10135	1.3	21500	59	1	10	.1	8	5850	.1	40	456	122350	830	18	21080	467	2	310	45	1190	22	1	10	1	1	214.6	35	1	1	2	98	22
10136	.8	2590	17	1	128	.5	2	54880	.1	18	31	38650	2510	1	33080	1118	1	120	34	790	30	1	5	1	1	62.7	29	1	1	1	26	9
10137	1.1	18990	2	1	13	.3	6	8470	.1	34	189	51180	1100	13	22420	454	1	570	19	1070	30	1	11	1	1	87.9	35	1	1	1	35	4
10138	.6	11620	8	1	48	.4	4	10860	.1	19	147	38570	5680	21	11450	456	1	330	8	1500	30	1	10	1	1	143.0	81	1	1	1	46	6
10139	.8	10170	19	1	168	.3	5	10600	.1	21	12	46470	6300	22	12300	427	1	660	10	1630	29	1	10	1	1	162.0	78	2	1	1	71	3
10175	1.1	11910	7	1	58	.5	4	23470	.1	12	209	29180	5470	9	10140	778	2	540	2	1360	28	1	42	1	1	88.7	31	2	1	1	47	7
10176	.6	1060	30	1	6	.1	1	9210	.5	2	179	4900	260	1	1470	186	7	50	3	40	84	1	1	1	1	9.4	8	1	1	2	172	1
10177	2.1	17050	33	1	8	.1	5	44460	.1	13	545	23190	240	6	8840	844	3	40	12	1010	31	6	66	1	1	65.9	37	2	1	1	64	5
10178	.4	10510	14	1	183	.6	2	27570	.1	10	12	30650	4070	6	6790	1048	1	330	1	1280	40	1	9	1	1	70.6	44	2	1	1	42	2
10179	.3	2490	41	1	400	.5	2	34020	.1	9	6	22980	2020	1	13880	902	5	40	4	470	33	1	9	1	1	43.4	33	2	1	1	111	2
10180	2.2	3000	61	1	34	.3	4	110590	.1	12	20	23970	2240	1	11910	516	2	50	13	770	35	4	60	1	1	45.1	29	3	1	1	20	1
10181	2.0	20550	1	7	18	.1	8	29340	.1	21	61	68490	820	7	8200	612	3	560	1	1310	29	1	5	1	1	236.5	52	2	1	1	19	2
10182	2.3	25220	1	1	27	.1	9	48190	.1	27	90	51940	830	12	20970	1303	1	1650	39	1510	33	1	23	1	1	163.1	57	1	1	1	44	2
10239	2.1	12750	12	1	14	.2	7	22480	.1	23	274	50560	1500	12	13540	791	15	730	7	2180	32	1	44	1	1	157.7	47	2	1	1	73	1
10240	2.1	14500	1	1	45	.1	7	14630	.1	17	494	40730	4160	11	8570	301	4	970	6	1760	26	1	40	1	1	135.0	31	2	1	1	28	1
10241	1.9	14380	6	1	75	.1	6	14090	.1	16	341	36860	3900	7	10200	276	1	700	2	1710	28	1	43	1	1	104.8	27	1	1	1	22	2
10242	3.9	19800	13	1	24	.2	8	19590	.1	22	2463	38770	3070	7	15900	783	7	1300	5	1590	35	1	36	1	1	128.7	75	2	1	1	16	31
10243	6.9	15140	20	1	299	.1	9	11050	.1	22	5509	30990	3260	8	16370	520	7	490	33	1580	30	3	32	1	1	116.5	55	2	2	1	89	208

COMP: RIO ALGOM EXPLORATION INC.
PROJ: TAK 9015
ATTN: G.COPE

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 0V-1149-RJ1
DATE: 90/08/21
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
10140	18.2	5820	10	1	51	.9	1	9760	6.8	34	10041	22380	2130	12	8030	220	2	190	75	2430	61	14	24	1	1	28.2	177	1	2	5	108	875
10141	5.1	5100	1	1	26	.6	1	12460	1.9	14	2586	15480	2270	8	6620	242	1	400	19	2690	40	2	15	1	1	35.8	49	1	1	1	53	202
10143	.7	5970	1	1	24	.8	2	5350	.1	21	237	33200	970	7	4570	246	16	270	1	1130	38	1	8	1	1	31.4	18	1	2	1	48	21
10144	.8	5850	1	1	35	.7	1	18680	.1	10	158	18020	1400	7	5390	519	1	210	1	1150	23	1	7	1	1	30.2	24	1	1	1	40	1
10183	18.2	4090	1	1	17	.2	1	11350	.6	5	5113	9860	970	2	4020	201	2	320	4	1700	31	4	9	1	1	19.9	15	1	1	1	47	347
10184	1.1	7070	1	1	20	.4	2	6340	.1	13	213	22660	1660	5	7620	339	1	330	6	1580	24	1	5	1	1	36.7	28	2	1	1	33	1
10185	1.6	6560	1	1	21	.4	1	7360	.1	16	578	24700	2870	5	7060	174	1	250	5	2260	31	1	7	1	1	43.9	25	2	1	1	23	1
10186	3.8	17400	1	1	104	.4	1	15510	.1	18	1723	26910	11020	12	17610	555	2	440	11	1880	24	1	9	1	1	114.4	47	1	1	1	41	3
10187	1.9	9030	1	1	238	1.3	1	39660	.1	15	473	26110	3250	7	11040	834	1	120	9	1810	28	1	5	1	1	54.4	46	1	2	1	13	18
10188	4.7	10690	1	1	46	.5	1	8380	.1	15	4853	19410	3330	8	12100	311	10	350	11	1510	30	1	11	1	1	54.3	37	1	1	1	41	87
10189	3.1	9370	1	1	74	.3	1	9860	.1	11	2688	21010	5890	6	9220	399	2	510	5	1460	25	1	12	1	1	61.0	48	1	1	1	38	37
10190	.4	7870	1	1	32	.5	2	5980	.1	13	170	21500	4760	7	7390	196	13	390	2	1660	25	1	4	1	1	66.4	23	1	1	1	32	1
10191	.5	6210	1	1	39	.4	1	7180	.1	13	137	20400	2360	5	5190	228	2	530	6	1240	25	1	7	1	1	56.8	25	1	1	1	39	1
10192	1.4	12910	1	1	119	.5	2	14450	.1	12	308	28750	9210	9	12550	631	1	490	1	1510	24	1	9	1	1	94.7	58	1	1	1	49	1
10193	11.4	10630	1	1	16	.5	1	6590	.1	25	12045	30290	600	8	11460	389	1	350	3	950	39	7	17	1	1	29.8	46	1	1	1	41	1450
10194	1.3	5660	1	1	24	.5	2	7850	.1	12	459	24740	1830	8	4780	169	1	430	1	1880	54	1	17	1	1	40.5	25	3	1	1	38	1
10195	1.4	18490	1	1	72	.5	4	9080	.1	19	222	33360	12340	20	16350	745	2	840	5	1110	25	1	13	1	1	114.3	94	1	1	1	35	1
10246	1.1	8610	1	1	35	.6	2	17730	.1	9	99	21980	3590	9	7830	480	1	420	1	1530	28	1	12	1	1	66.9	26	3	1	1	23	1
10247	1.7	6260	1	1	35	.5	2	14490	.1	25	385	24390	3360	4	5470	423	1	500	3	1260	29	1	8	1	1	37.6	22	1	1	1	27	1
10248	.7	13450	1	1	146	.3	2	8010	.1	12	32	26390	9470	9	12440	536	1	430	1	1390	19	1	8	1	1	58.9	36	1	1	1	35	1
10249	.5	9320	1	1	55	.6	1	10110	.1	15	78	23820	3510	7	9250	504	1	350	1	1480	22	1	10	1	1	60.1	46	1	1	1	13	1
10250	1.7	3590	235	1	9	.8	1	23410	.8	58	784	52530	630	3	3430	504	1	200	16	900	33	1	6	1	1	22.8	18	1	5	1	39	345
10251	.7	1460	35	1	14	.1	2	2890	.1	5	35	10990	990	1	1090	94	6	130	1	270	28	1	2	1	1	12.1	9	1	1	5	153	72
10252	.7	9100	1	1	100	.5	2	7000	.1	12	28	23960	6670	8	9750	467	1	290	1	1700	25	1	8	1	1	63.5	59	1	1	1	40	19
10253	.8	17160	1	1	190	.6	3	6050	.1	24	62	35000	14810	14	21880	438	1	160	9	1720	18	1	4	1	1	86.9	50	1	1	1	28	1
10254	.4	4800	1	1	54	.5	2	6300	.1	17	80	38290	2290	4	3490	62	6	350	9	1540	33	1	55	1	1	19.3	10	1	1	1	52	1
10255	2.2	9210	152	3	38	1.4	1	35100	.1	34	1428	52820	8550	8	25850	1063	1	100	37	1920	58	393	14	1	1	102.2	133	1	5	2	83	1
10256	1.0	8260	1	1	35	.5	2	7980	.1	22	248	27700	6430	10	8510	241	1	240	12	1760	31	3	5	1	1	46.4	32	2	1	1	54	18

MIN • EN LABORATORIES
(DIVISION OF ASSAYERS CORP.)

SPECIALISTS IN MINERAL ENVIRONMENTS
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

VANCOUVER OFFICE:
705 WEST 15TH STREET
NORTH VANCOUVER, B.C. CANADA V7M 1T2
TELEPHONE (604) 980-5814 OR (604) 988-4524
FAX (604) 980-9621

THUNDER BAY LAB.:
TELEPHONE (807) 622-8958
FAX (807) 623-5931

SMITHERS LAB.:
TELEPHONE/FAX (604) 847-3004

Assay Certificate

0V-0943-XA1

Company: **RIO ALGOM EXPLORATION INC.**
Project: TAK 9015
Attn: G.COPE

Date: SEP-15-90
Copy 1. RIO ALGOM EXPL.INC., VANCOUVER, B.C.

We hereby certify the following Assay of 3 PULP samples submitted JUL-18-90 by G.COPE.

Sample Number	AU g/tonne	AU oz/ton	AG g/tonne	AG oz/ton	CU %
10126	.16	.005	25.2	.74	2.150
10129	1.80	.053	42.0	1.23	1.530
10243	.25	.007	6.2	.18	.659

Certified by [signature]

MIN-EN LABORATORIES

COMP: RIO ALGOM EXPLORATION INC.
PROJ: TAK 9015
ATTN: G.COPE

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: OV-0943-LJ1
DATE: 90/07/24
* SILT * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
10244	.4	22360	1	1	61	.4	4	15860	.1	16	65	34260	640	15	14330	1087	1	170	28	1610	31	1	29	1	1	136.0	100	1	4	1	63	1
10245	.8	20970	1	3	42	.1	6	14470	.1	24	42	50130	410	12	16400	2045	1	630	30	980	31	1	15	1	1	202.4	93	1	1	1	46	2
GCS30	.1	14250	1	1	57	.3	5	10840	.1	23	103	88500	2600	10	10180	567	1	210	3	1400	33	1	33	1	1	288.5	41	1	1	2	92	1
GCS31	.8	22430	1	5	41	.4	6	12640	.1	25	86	54860	860	22	22010	795	1	230	41	710	31	1	26	1	1	181.2	72	1	1	2	154	3
GCS32	1.2	15650	20	1	64	.3	6	9250	.1	27	88	54000	1630	15	19120	793	1	180	46	670	35	1	22	1	1	164.2	86	2	1	2	186	45
GCS33	.4	18190	1	1	65	.3	4	9870	.1	17	99	34200	1480	26	15750	586	3	190	31	860	31	1	21	1	1	106.2	58	1	1	1	105	20
GCS34	.5	15200	6	1	80	.8	4	10910	.1	20	116	45940	2370	26	12530	579	2	310	17	1760	47	1	24	1	1	181.1	89	1	2	1	102	3
GCS35	.4	15710	1	1	57	.3	5	9740	.1	21	63	44260	1000	15	20150	1125	1	130	33	940	31	1	16	1	1	145.7	76	1	1	2	112	57
SP070	.7	21300	1	1	83	.5	5	10860	.1	25	171	52170	4920	16	19210	835	1	190	20	1260	37	1	33	1	1	159.9	59	1	1	1	87	2
SP071	.5	9880	11	1	46	.2	4	9040	.1	13	56	28960	3070	8	9010	470	3	170	16	1080	29	1	27	1	1	89.4	33	1	1	1	52	1
SP072	.4	19620	1	2	78	.1	7	12670	.1	26	39	57900	390	11	17270	3258	1	210	42	930	35	1	19	1	1	172.9	83	1	1	1	78	1

COMP: RIO ALGOM EXPLORATION INC.
PROJ: TAK 9015
ATTN: G.COPE

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: 0V-1149-LJ1
DATE: 90/08/25
* SILT * (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
10142	1.0	20990	1	6	70	.1	3	12420	.1	20	150	76980	1120	13	8310	739	2	130	1	1590	19	1	45	1	1	242.1	36	1	1	2	1	62

GEOCHEMICAL ANALYSIS CERTIFICATE

Rio Algom Exploration Inc. PROJECT 9015 File # 90-3390 Page 1

P.O. Box 10335, 1650 - 609 Granville St., Vancouver BC V7Y 1G5 Submitted by: GRAHAM R. COPE

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
K 01	14	518	76	134	.9	23	33	1229	6.83	10	5	ND	1	109	.2	2	11	156	.97	.128	9	51	2.30	162	.13	5	3.14	.03	.53	4	77
K 02	17	614	27	146	.8	24	33	1263	7.34	13	5	ND	1	97	1.0	2	9	159	.83	.139	11	48	2.37	201	.11	3	3.36	.03	.59	1	76
K 03	12	436	28	174	.3	25	29	1167	6.89	10	5	ND	1	84	1.0	3	2	166	1.03	.145	11	55	2.44	202	.13	2	3.51	.02	.54	1	49
K 04	8	142	9	53	.3	3	10	1333	1.98	2	5	ND	1	88	.2	2	2	49	2.17	.274	8	8	.47	120	.02	2	1.09	.01	.07	1	59
K 05	8	54	16	67	.1	5	17	1977	4.19	2	5	ND	1	53	.2	2	2	114	.38	.187	4	13	.51	157	.02	2	1.41	.01	.16	3	19
K 06	7	96	13	104	.2	12	20	884	4.16	6	5	ND	1	61	.6	2	2	105	.77	.164	6	21	1.33	99	.10	2	2.34	.01	.13	3	24
K 07	8	160	43	99	.1	12	26	1643	5.21	7	5	ND	1	82	.2	2	2	113	.88	.154	8	28	1.33	104	.10	2	2.15	.01	.23	3	12
K 08	7	277	15	107	.6	10	25	1726	6.11	13	5	ND	1	68	.8	2	2	133	.80	.132	8	16	1.52	141	.10	2	2.31	.01	.57	1	390
K 09	7	160	21	144	.2	11	33	2197	6.45	15	5	ND	1	67	2.3	2	2	132	1.29	.212	7	31	1.80	187	.12	2	2.43	.01	.64	1	200
K 10	10	250	19	128	.7	11	38	2643	7.89	11	5	ND	1	100	1.1	2	15	150	1.14	.189	10	35	1.97	230	.14	5	2.65	.01	.64	3	260
K 11	8	211	25	110	.5	10	26	1940	6.34	4	5	ND	1	78	.4	2	2	127	2.06	.163	10	28	1.72	175	.11	2	2.39	.01	.54	2	131
K 12	3	79	6	92	.1	6	19	1337	3.51	19	5	ND	1	75	.7	2	2	71	2.38	.133	8	15	.90	193	.05	2	1.25	.01	.31	1	53
K 13	12	224	22	125	.2	5	36	2539	7.45	6	5	ND	1	58	.5	2	10	149	.81	.162	8	26	2.11	198	.15	3	2.95	.01	.69	2	112
K 14	8	70	13	85	.1	4	29	2706	5.86	7	5	ND	1	56	.2	2	2	134	.99	.141	5	17	1.57	166	.10	2	2.23	.01	.37	1	41
K 15	8	89	8	81	.1	7	34	2863	6.33	5	5	ND	1	88	1.2	3	2	126	1.61	.116	10	16	2.34	162	.13	4	3.10	.01	.63	2	16
K 16	10	125	8	70	.2	8	28	2311	6.68	5	5	ND	1	69	.2	2	3	144	1.66	.124	17	21	1.51	203	.07	7	2.35	.01	.36	3	55
K 17	45	316	64	103	.6	8	41	2774	9.66	5	5	ND	1	56	.7	2	15	198	1.01	.158	25	15	1.43	178	.09	5	2.19	.01	.42	6	380
K 18	17	428	37	110	.8	13	46	2395	7.81	5	5	ND	1	87	.9	2	7	171	1.04	.134	18	30	1.94	100	.13	2	2.62	.02	.31	2	159
K 19	30	306	36	115	.5	10	44	3210	8.15	5	5	ND	1	83	.6	2	10	173	1.02	.120	13	18	1.91	126	.11	6	2.69	.01	.53	1	148
K 20	37	412	50	167	.7	6	44	4312	9.11	13	5	ND	1	73	2.2	2	16	200	.91	.138	17	22	2.14	148	.14	4	3.18	.01	.57	3	65
K 21	7	117	15	127	.3	6	31	4080	6.38	3	5	ND	1	62	.7	2	6	130	.52	.200	7	19	1.65	215	.10	3	2.76	.01	.55	1	24
K 22	8	217	36	140	.3	4	31	2911	5.97	11	5	ND	1	186	.9	2	5	110	.78	.155	5	22	1.60	171	.07	5	2.60	.01	.39	1	80
K 23	7	187	66	398	.1	10	31	2830	6.22	13	5	ND	1	110	1.2	2	2	120	.58	.132	6	19	2.32	200	.16	2	3.71	.01	.81	1	67
K 24	7	137	93	342	.1	10	29	2152	6.17	6	5	ND	1	70	.5	2	2	129	.47	.118	4	22	2.26	146	.18	2	3.70	.01	.70	2	22
K 25	4	155	30	94	.2	56	27	931	5.17	18	5	ND	1	44	.2	2	2	128	.70	.137	3	149	1.81	104	.12	3	2.11	.02	.37	1	60
K 26	4	151	16	78	.1	36	23	722	5.19	19	5	ND	1	40	.2	2	6	141	.60	.110	2	93	1.35	75	.14	3	1.80	.02	.26	2	89
K 27	3	444	73	132	.2	96	50	1995	8.42	36	5	ND	1	66	1.2	6	14	167	.98	.219	3	228	2.91	229	.12	2	2.91	.02	.75	2	26
K 28	3	444	77	132	.3	102	52	2030	8.59	41	5	ND	1	66	1.6	8	10	169	.99	.218	3	233	2.97	245	.12	4	2.94	.02	.76	3	17
K 29	16	351	170	123	.6	35	33	1875	6.85	10	5	ND	1	55	.2	2	7	143	.73	.140	5	101	1.91	79	.14	3	2.46	.02	.29	2	29
K 30	7	262	82	204	.3	13	29	2704	6.08	9	5	ND	1	48	.2	2	7	122	.39	.166	6	44	1.57	86	.07	2	3.16	.01	.19	2	220
K 31	10	89	40	213	.5	6	19	4148	4.69	7	5	ND	1	66	1.0	2	2	90	.42	.219	5	19	.94	155	.02	8	2.43	.01	.17	1	22
K 32	4	138	85	150	.1	11	13	722	3.83	9	5	ND	1	67	1.0	2	2	80	.57	.251	12	14	1.01	69	.02	2	2.89	.02	.12	3	17
K 33	3	68	34	254	.1	8	14	896	3.85	8	5	ND	1	76	.2	3	4	102	.43	.163	5	26	1.46	86	.10	3	3.07	.02	.32	2	25
K 34	5	60	42	170	.2	10	20	1176	5.92	13	5	ND	1	40	.2	3	2	128	.30	.149	5	23	1.41	57	.07	5	3.49	.01	.17	2	18
K 35	3	22	13	108	.4	2	11	820	3.48	4	5	ND	1	68	.2	2	2	91	.38	.109	3	15	.78	88	.08	4	1.72	.02	.26	1	33
K 36	6	16	15	50	.3	2	5	221	1.66	10	5	ND	1	68	.2	2	2	61	.27	.068	4	8	.39	62	.10	3	1.30	.01	.07	1	55
STANDARD C/AU-S	20	58	42	131	7.2	72	32	1051	3.95	41	18	7	39	52	17.9	15	18	58	.51	.097	39	60	.89	183	.08	38	1.88	.06	.13	12	52

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 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 SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: Soil -80 Mesh AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE RECEIVED: AUG 13 1990 **DATE REPORT MAILED:** Aug 17/90. **SIGNED BY** ....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Rio Algom Exploration Inc. PROJECT 9015 FILE # 90-3390

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 1	12	258	32	114	.6	21	24	1442	5.76	2	5	ND	1	88	.4	2	2	155	1.11	.080	4	54	2.19	86	.16	2	3.49	.01	.21	1	39
G 2	12	326	44	125	.6	22	26	1543	6.02	5	5	ND	1	91	.6	2	2	167	1.72	.105	4	57	2.38	96	.16	2	3.54	.01	.16	1	70
G 3	12	265	22	126	.7	20	19	1052	5.86	15	5	ND	1	69	.4	2	2	135	.85	.150	7	40	1.81	104	.08	2	3.17	.01	.12	1	88
G 4	3	108	15	78	.5	13	13	709	4.22	4	5	ND	1	56	.2	3	2	97	.36	.108	6	26	1.14	80	.08	2	2.83	.01	.08	1	39
G 5	4	223	25	161	.4	16	21	1740	5.63	9	5	ND	1	74	.6	2	2	134	1.56	.128	8	28	2.01	145	.15	3	3.48	.01	.34	1	74
G 6	2	106	12	86	.2	12	16	798	4.94	16	5	ND	1	55	.2	2	2	108	.44	.112	6	21	1.37	88	.15	2	2.77	.01	.16	1	31
G 7	4	289	22	122	.5	22	22	1120	5.61	7	5	ND	1	121	.4	2	2	141	.86	.129	5	54	2.25	122	.14	2	3.58	.02	.22	1	47
G 8	2	85	9	86	.4	17	17	770	5.50	12	5	ND	1	68	.2	2	2	133	.45	.102	3	47	1.73	96	.18	2	2.72	.02	.26	1	23
G 9	7	452	20	136	.6	20	27	1415	6.90	10	5	ND	1	116	.6	2	2	152	.88	.123	8	42	2.28	142	.16	2	3.61	.02	.31	1	165
G 10	2	337	13	93	.3	21	21	816	4.91	10	5	ND	1	83	.2	2	2	117	.84	.109	8	36	1.88	119	.15	2	3.59	.02	.17	1	68
G 11	1	135	13	73	.4	15	16	472	4.67	16	5	ND	1	65	.2	3	2	111	.48	.110	5	29	1.37	91	.14	2	3.00	.01	.20	1	52
G 12	3	116	24	100	.3	13	16	601	5.61	11	5	ND	1	68	.2	2	2	127	.52	.175	4	29	1.42	57	.18	2	3.27	.02	.19	1	49
G 13	3	195	30	127	.1	15	24	1121	6.19	12	5	ND	1	78	.2	2	2	140	.58	.146	5	29	1.75	85	.21	3	3.54	.02	.31	1	42
G 14	2	75	16	82	.5	14	13	513	5.72	7	5	ND	1	59	.2	2	2	130	.33	.116	5	30	1.19	50	.19	2	2.79	.01	.12	1	21
G 15	1	46	16	49	.8	7	8	334	3.56	15	5	ND	1	67	.2	2	2	102	.33	.073	4	19	.65	43	.21	2	1.88	.02	.08	1	22
G 16	1	59	14	73	.3	13	12	430	5.27	7	5	ND	1	55	.2	2	2	126	.34	.115	5	32	1.10	53	.18	2	2.70	.02	.13	1	11
G 17	1	104	16	88	.7	17	13	433	4.57	9	5	ND	2	54	.2	2	2	100	.33	.103	7	30	1.21	64	.16	3	2.97	.02	.11	1	14
G 18	2	76	9	65	.5	12	10	282	4.36	13	5	ND	2	60	.2	2	2	102	.43	.155	7	25	.77	71	.12	2	3.11	.02	.07	1	19
G 19	1	37	10	43	.4	9	7	240	3.50	5	5	ND	1	49	.2	2	2	92	.32	.082	4	19	.63	46	.20	2	1.91	.02	.09	1	34
G 20	2	112	11	68	.3	14	13	385	5.06	8	5	ND	2	55	.2	2	2	114	.31	.121	6	24	1.01	61	.16	2	3.22	.01	.09	1	10
G 21	1	66	9	61	.6	6	8	384	6.20	3	5	ND	3	78	.6	2	2	112	.50	.360	7	14	.53	73	.07	2	5.58	.01	.05	1	1
G 22	1	61	11	40	.2	7	9	235	5.52	12	5	ND	2	50	.2	2	2	131	.26	.150	4	21	.60	45	.16	2	2.22	.01	.06	1	5
G 23	1	116	12	83	.5	11	13	368	5.81	2	5	ND	3	45	.2	2	2	130	.37	.188	7	24	.88	58	.15	2	4.37	.01	.11	1	8
G 24	1	85	9	60	.1	12	10	314	4.61	6	5	ND	2	59	.2	2	2	100	.30	.118	7	21	.75	66	.13	2	2.83	.01	.05	1	5
G 25	1	63	7	53	.3	11	9	265	5.23	2	5	ND	3	41	.2	2	2	116	.25	.137	7	29	.62	56	.12	2	2.66	.01	.04	1	5
G 26	1	76	11	61	.3	10	14	274	8.82	8	5	ND	4	54	.6	2	2	208	.49	.287	8	29	.53	46	.08	2	3.30	.01	.06	1	4
G 27	1	67	7	68	.5	14	10	309	5.10	12	5	ND	3	66	.2	2	2	102	.48	.278	7	29	.79	76	.11	2	3.42	.01	.07	1	4
G 28	1	94	5	54	.3	8	10	325	6.41	6	5	ND	3	78	.4	2	2	146	.44	.470	6	23	.88	73	.14	2	3.90	.01	.12	2	10
G 29	1	87	7	112	.3	13	12	388	5.33	3	5	ND	3	62	.2	2	2	120	.26	.114	6	30	.99	65	.16	2	3.61	.01	.07	1	5
G 30	1	73	6	61	.2	20	9	328	4.22	18	5	ND	3	41	.2	2	2	89	.27	.093	8	37	.86	75	.15	2	2.72	.02	.05	1	9
S-1	1	302	86	129	.6	21	28	1326	5.66	14	5	ND	1	169	.4	2	2	145	1.02	.175	5	43	2.21	117	.22	2	2.62	.01	.54	1	19
S-2	8	700	12	130	1.4	21	27	1240	7.38	14	5	ND	1	96	.7	2	2	130	.40	.148	13	33	2.09	181	.10	2	3.18	.04	.61	1	66
S-3	10	378	7	114	.2	24	30	934	7.48	30	5	ND	1	76	.5	3	2	136	.54	.125	4	37	1.90	164	.14	2	2.92	.03	.49	1	39
S-4	5	201	35	132	.3	24	23	1160	6.07	24	5	ND	1	42	.5	3	2	167	.58	.132	6	56	2.18	156	.18	2	3.13	.01	.66	1	19
S-5	8	335	24	162	.6	20	37	1532	6.07	24	5	ND	1	75	.8	4	2	130	.93	.150	3	30	2.10	135	.19	2	2.81	.01	.53	1	48
S-6	7	413	40	169	.4	21	35	1527	5.94	16	5	ND	1	94	.5	2	3	140	.59	.133	3	42	1.95	109	.16	3	2.86	.01	.43	1	112
STANDARD C/AU-S	18	62	38	131	6.7	72	32	1048	4.00	44	19	7	38	53	18.5	15	18	56	.52	.095	38	58	.89	181	.09	36	1.89	.06	.13	13	48

*. Revised Copy

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
S-7	7	113	21	148	.4	17	22	1110	5.29	13	5	ND	1	68	.2	3	3	137	.56	.127	3	33	1.61	89	.08	4	2.39	.02	.25	2	26
S-8	7	262	52	112	.7	27	32	1370	5.70	9	5	ND	1	93	.5	4	9	148	1.13	.144	4	58	2.34	121	.15	6	2.80	.02	.70	1	67
S-9	6	185	49	107	.4	26	32	1421	5.66	15	5	ND	1	128	.2	2	6	146	.91	.161	3	55	2.39	107	.16	2	3.01	.02	.59	1	31
S-11	8	176	25	158	.3	21	29	1537	5.84	10	5	ND	1	97	.2	3	2	144	1.03	.152	3	35	2.65	99	.16	2	3.10	.01	.53	1	40
S-12	13	250	19	168	.7	24	34	1715	6.53	17	5	ND	1	182	1.0	2	2	155	1.44	.130	4	45	2.90	134	.17	4	3.99	.01	.32	1	44
S-13	6	311	12	128	.7	23	34	1585	6.38	20	5	ND	1	361	1.0	2	5	155	1.49	.143	3	49	3.10	135	.17	4	4.20	.02	.44	1	63
S-14	24	502	10	100	.8	21	37	1488	7.59	16	5	ND	1	322	1.0	2	9	150	1.69	.109	3	36	2.13	91	.14	2	4.06	.02	.45	1	144
S-15	11	407	21	113	.9	22	32	1591	5.73	13	5	ND	1	400	.2	2	2	147	1.66	.118	3	42	2.68	107	.16	4	4.00	.01	.40	3	56
S-16	7	288	10	84	.4	25	28	1027	5.14	14	5	ND	1	363	.5	2	2	138	1.93	.121	2	37	2.22	114	.15	6	4.06	.02	.41	1	83
S-17	6	506	20	98	.9	20	25	1308	5.39	14	5	ND	1	335	.7	2	2	139	2.13	.120	3	46	2.47	71	.14	4	3.57	.01	.30	1	55
S-18	2	326	23	122	.2	26	27	1630	5.86	12	5	ND	1	177	.7	2	2	154	1.06	.148	3	62	2.74	100	.13	2	3.62	.02	.47	1	35
S-19	2	981	13	104	1.5	18	22	1335	5.32	18	5	ND	1	211	.6	2	2	152	1.98	.123	3	26	2.24	76	.16	2	4.69	.02	.38	3	82
S-20	5	506	2	110	.9	24	29	1540	6.67	18	5	ND	1	198	.3	2	5	158	1.18	.176	6	38	2.48	87	.15	2	3.39	.02	.41	1	89
S-21	24	208	12	120	.7	17	33	2636	7.57	17	5	ND	1	181	.8	2	4	166	1.23	.161	5	34	2.87	152	.17	2	4.03	.01	.75	1	102
S-22	4	489	16	127	.8	29	36	1908	6.91	14	5	ND	1	155	.3	2	2	172	1.12	.184	8	47	2.88	100	.17	3	3.49	.02	.54	1	94
S-23	2	336	8	104	.5	20	23	1510	5.68	9	5	ND	1	83	.6	2	2	154	1.48	.152	7	42	2.38	89	.11	5	2.79	.02	.44	1	42
S-24	5	136	61	143	.7	11	24	2199	6.73	13	5	ND	1	76	1.1	2	2	150	.90	.169	9	31	2.37	159	.11	2	3.18	.01	.41	2	68
S-25	5	382	25	164	.6	12	28	2760	7.13	15	5	ND	1	138	1.7	2	4	154	.91	.169	9	31	2.41	165	.14	4	3.08	.01	.46	2	134
S-26	3	278	56	187	.9	19	29	2504	8.28	15	5	ND	1	74	.9	2	12	180	.96	.171	12	48	2.61	159	.14	3	3.89	.01	.48	2	87
S-27	6	273	81	156	.8	12	24	2103	7.47	14	5	ND	1	82	.5	2	2	166	.93	.142	10	24	2.35	154	.10	7	3.26	.01	.31	1	360
S-28	4	304	37	140	1.2	10	29	2660	7.70	17	5	ND	1	62	1.4	3	3	163	.88	.169	12	19	2.35	181	.12	5	3.06	.01	.43	2	120
S-29	8	281	44	93	.9	10	30	2566	8.34	19	5	ND	1	71	.2	5	2	127	.78	.146	12	26	1.53	347	.06	6	2.54	.02	.24	5	310
S-30	9	477	38	90	.5	13	23	1658	7.92	17	5	ND	1	31	.3	9	2	130	.46	.123	9	26	1.25	240	.05	4	2.50	.01	.17	3	68
S-31	2	162	26	87	.3	19	22	1052	6.07	9	5	ND	1	47	.2	3	2	115	.51	.144	9	43	1.64	231	.10	6	2.52	.01	.27	1	89
S-32	1	69	8	99	.2	17	21	1518	5.34	6	5	ND	1	49	.2	2	2	113	.36	.126	5	36	1.49	168	.06	2	2.72	.01	.19	3	30
STANDARD C/AU-S	19	58	41	131	7.2	72	31	1049	3.95	40	19	7	38	53	18.2	16	20	56	.51	.092	38	59	.91	181	.08	39	1.89	.06	.14	11	47

APPENDIX IV

LOGISTICAL REPORT ON AIRBORNE MAGNETIC AND VLF-EM SURVEY

REPORT ON
COMBINED HELICOPTER-BORNE
MAGNETIC AND VLF SURVEY
CHUCHI LAKE, GERMANSEN LAKE AREA
BRITISH COLUMBIA

FOR
RIO ALGOM EXPLORATION INC.
BY
AERODAT
August 30, 1990

J9029

Adriana Carbone
Geologist

Sandra A. Takata
Project Supervisor/Geophysicist

TABLE OF CONTENTS

List of Maps
(Scale 1:10,000)

Basic Maps: (As described under Appendix B of the Contract)

1. **PHOTOMOSAIC BASE MAP;**
   Prepared from available air photos and photographically enlarged to 1:10,000 scale.

2. **FLIGHT LINE MAP;**
   Showing all flight lines and fiducials with the base map.

3. **TOTAL FIELD MAGNETIC CONTOURS;**
   Showing magnetic values corrected of all diurnal variation with flight lines, fiducials, and base map.

4. **VERTICAL MAGNETIC GRADIENT CONTOURS;**
   Showing magnetic gradient values calculated from the total field magnetics with flight lines, fiducials and base map.

5. **VLF-EM TOTAL FIELD CONTOURS;**
   Showing VLF total field response from the line transmitter with flight lines, fiducials, and base map.

1. INTRODUCTION

This report describes an airborne geophysical survey carried out on behalf of Rio Algom Exploration Inc. by Aerodat Limited. Equipment operated during the survey included a high sensitivity cesium vapour magnetometer, a two frequency VLF-EM system, a video tracking camera, radar altimeter, and an electronic positioning system. Magnetic and altimeter data were recorded both in digital and analog forms. Positioning data was stored in digital form, encoded on VHS format video tape and recorded at regular intervals in local UTM coordinates, as well as being marked on the flight path mosaic by the operator while in flight.

The survey area consists of the Klawll Claims and the Tak Claims. The Klawll Claims is at Chuchi Lake, approximately 12 kilometres west of the Fort St. James-Manson Creek Road. The Tak Claims are located about 18 kilometres west of Germansen Lake. The survey was flown on May 18, 1990. Data from twelve flights were used to compile the survey results. The flight lines were oriented at an angle of 0 degrees, with a nominal line spacing of 100 metres (according to Appendix "A" of the contract). Geophysical information is provided in the form of maps at 1:10,000. Coverage and data quality were considered to be well within the specifications described in the service contract.

The purpose of the survey was to record airborne geophysical data over ground that is of interest to Rio Algom Exploration Inc.

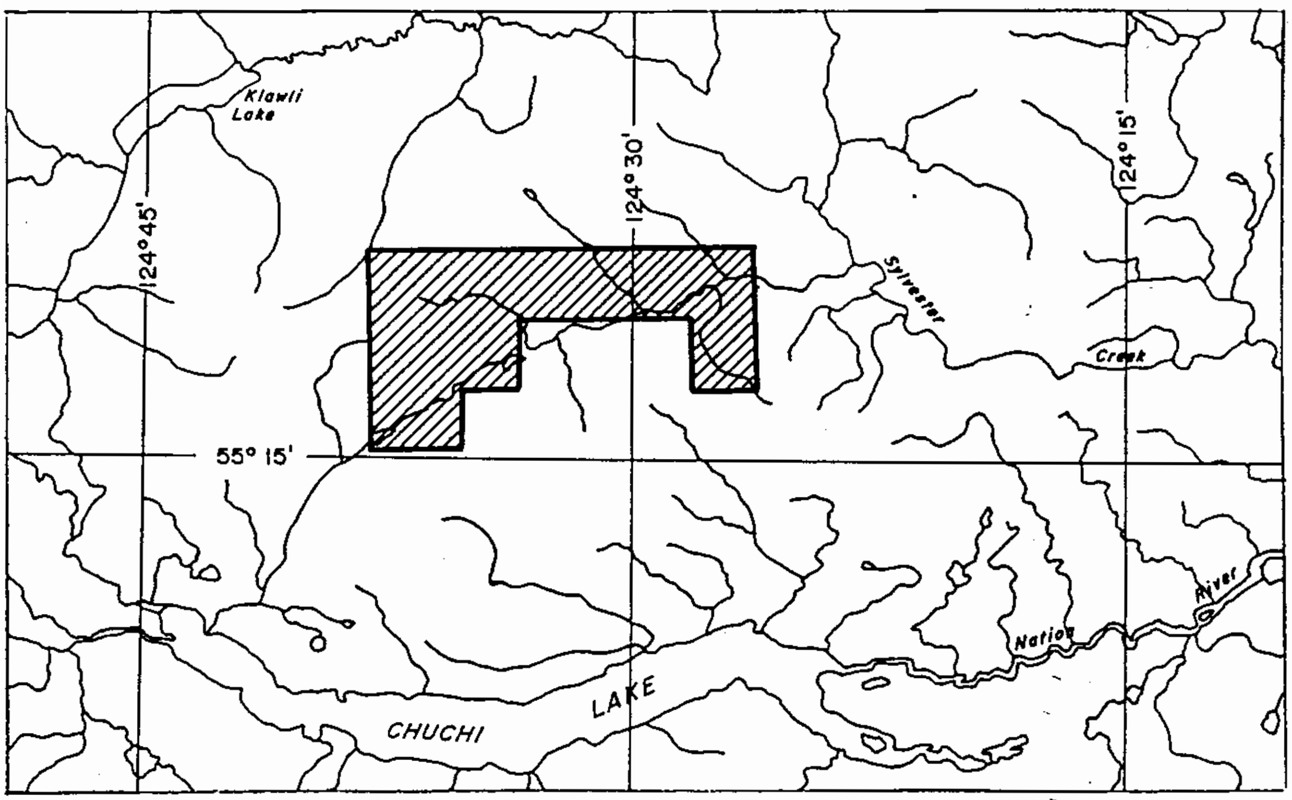
Klawll claims consisted of a total of 500 line kilometres, Tak claims consisted of 300 line kilometres of the recorded data that were compiled in a map form at a scale of 1:10,000. The maps are presented as part of this report according to specifications laid out by Rio Algom Exploration Inc.

2. SURVEY AREA LOCATION

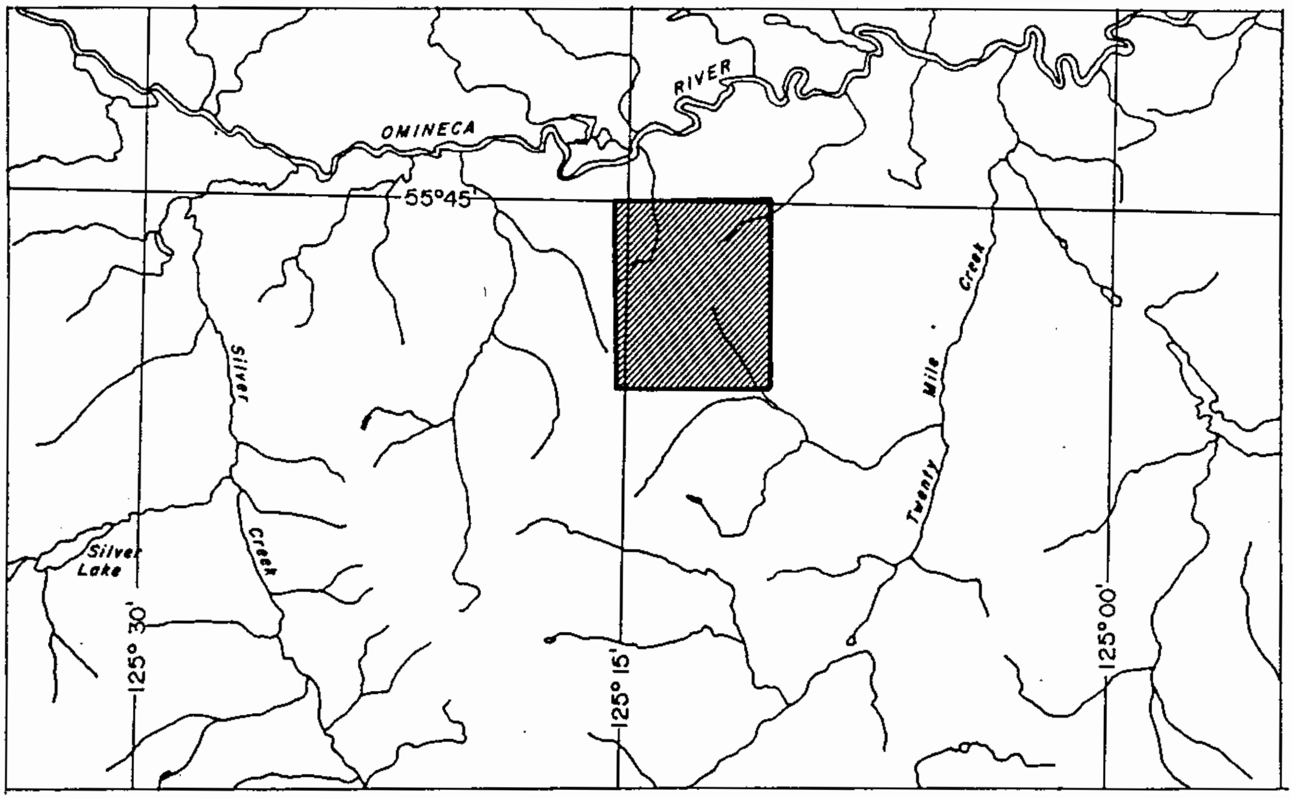
The survey area is depicted on the following index maps.

Klawll Claims is centred at approximate geographic latitude 55 degrees 17 minutes North, longitude 124 degrees 30 minutes West.

Tak Claims is centred at approximate geographic latitude 55 degrees 41 minutes North, longitude 125 degrees 12 minutes West.



Klawll Claim


OMINECA
RIVER
55°45'
Silver
Creek
Silver
Lake
Twenty
Mile
Creek
125° 30'
125° 15'
125° 00'

Tak Claim

3. AIRCRAFT AND EQUIPMENT

3.1 Aircraft

A Bell Jet Ranger 206 B, helicopter, (C-GVHT), piloted by R. Mitchinson, owned and operated by Peace Helicopters Limited, was used for the survey. Peter Moore of Aerodat acted as navigator and equipment operator. Installation of the geophysical and ancillary equipment was carried out by Aerodat. The survey equipment was flown at a mean terrain clearance of 60 metres.

3.2 Equipment

3.2.1 VLF-EM System

The VLF-EM System was a Herz Totem 2 A. This instrument measures the total field and quadrature component of the selected frequency. The sensor was towed in a bird 30 metres below the helicopter.

3.2.2 Magnetometer System

The magnetometer employed a Scintrex Model VIW 2321 H8 cesium, optically pumped magnetometer sensor. The sensitivity of this instrument was 0.1 nanoTeslas. The sensor was towed in a bird 30 metres below the helicopter.

3.2.3 Magnetic Base Station

An IFG proton precession magnetometer was operated at the base of operations to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to facilitate later correlation.

3.2.4 Altimeter System

A King KRA 10 radar altimeter was used to record terrain clearance. The output from the instrument is a linear function of altitude for maximum accuracy.

3.2.5 Tracking Camera

A Panasonic video flight path recording system was used to record the flight path on standard VHS format video tapes. The system was operated in continuous mode and the flight number, real time and manual fiducials were registered on the picture frame for cross-reference to the analog and digital data.

3.2.6 Analog Recorder

An RMS dot-Matrix recorder was used to display the data during the survey. In addition to manual and time fiducials, the following data was recorded:

Channel	Input	Scale
VLT	VLF-EM Total Field, Line	25 %/cm
VLQ	VLF-EM Quadrature, Line	25 %/cm
VOT	VLF-EM Total Field, Ortho	25 %/cm
VOQ	VLF-EM Quadrature, Ortho	25 %/cm
RALT	Radar Altimeter	100 ft./cm
MAGF	Magnetometer, fine	25 nT/cm
MAGC	Magnetometer, coarse	250 nT/cm

3.2.7 Digital Recorder

A DGR 33:16 data system recorded the survey on magnetic tape. Information recorded was as follows:

Equipment	Recording Interval
VLF-EM	0.20 seconds
Magnetometer	0.20 seconds
Altimeter	0.20 seconds
Nav System	0.20 seconds

3.2.8 Radar Positioning System

A Mini-Ranger MRS-III radar navigation system was used for both navigation and flight path recovery. Transponders sited at fixed locations were interrogated several times per second and the ranges from these points to the helicopter were measured to a high degree of accuracy. A navigational computer triangulated the position of the helicopter and provided the pilot with navigation information. The range/range data was recorded on magnetic tape for subsequent flight path determination.

4. DATA PRESENTATION

4.1 Base Map

A photomosaic base at a scale of 1:10,000 was prepared from available air photos and enlarged to the required scale.

4.2 Flight Path Map

The flight path was derived from the Mini-Ranger radar positioning system. The distance from the helicopter to two established reference locations was measured several times per second and the position of the helicopter was calculated by triangulation. It is estimated that the flight path is generally accurate to about 10 metres with respect to the topographic detail on the base map.

The flight lines have the time and the navigator's manual fiducials for cross reference to both analog and digital data.

4.3 Magnetics

4.3.1 Total Field Magnetic Contours Map

The magnetic data from the high sensitivity cesium magnetometer provided virtually a continuous magnetic reading when recording at 0.2 second intervals. The system is also noise free for all practical purposes.

A sensitivity of 0.1 nanoTesla (nT) allows for the mapping of very small inflections in the magnetic field, resulting in a contour map that is equal to or exceeds ground data in quality and accuracy.

The aeromagnetic data was corrected for diurnal variations by adjustment with the digitally recorded base station magnetic values. No correction for regional variation was applied. The corrected data was interpolated onto a regular grid at a 25 metre true scale interval using an Akima spline technique. This grid provided the basis for threading the presented contours at a 2 nT interval.

The contoured aeromagnetic data has been presented on a Cronaflex copy of the base map with flight lines.

4.3.2 Vertical Gradient Contour Map

The vertical magnetic gradient was calculated from the total field magnetic data. Contoured at a 0.2 nT/m interval, the data was presented on a cronaflex copy of the base map with flight lines.

4.4 VLF-EM Total Field Contours

The VLF data was interpolated onto a regular grid at a 25 metre true scale interval using an Akima spline technique. This grid provided the basis for threading the contours at a 2% interval.

The VLF-EM signal from the line transmitting station was compiled as contours in map form on cronaflex copies of the base map with flight lines.

The VLF stations used for the Klawll Claims were NAA, Cutler Maine, broadcasting at 24.0 kHz and NSS, Annapolis Maryland, broadcasting at 21.4 kHz. NAA was used as the line transmitting station for flights 1-3 and NSS was used for flights 4 and 5. The orthogonal station for flight 1-3 was NSS and NAA for flight 4 and 5.

The VLF stations used for the Tak Claims were NLK, Seattle Washington broadcasting at 24.8 kHz, NSS, Annapolis, Maryland, broadcasting at 21.4 kHz. NLK was used as the line transmitting station for flights 1-5 and NSS was used for flights 6-7. The orthogonal station used was NAA, Cutler Maine, broadcasting at 24.0 kHz for flights 1-7.

Respectfully submitted,

Adriana Carbone

August 30, 1990

Adriana Carbone
Geologist

Sandra A. Takata
Project Supervisor/Geophysicist

APPENDIX I

PERSONNEL

FIELD

Flown	May, 1990
Pilot	Ron Mitchinson
Operator	Peter Moore

OFFICE

Processing	A. Carbone G. McDonald S. Takata
Report	A. Carbone S.A. Takata

APPENDIX II

GENERAL INTERPRETIVE CONSIDERATIONS

Magnetics

A digital base station magnetometer was used to detect fluctuations in the magnetic field during flight times. The airborne magnetic data was levelled by removing these diurnal changes. The Total Field Magnetic map shows the levelled magnetic contours, uncorrected for regional variation.

The Calculated Vertical Gradient map shows contours of the magnetic gradient as calculated from the total field magnetic data. The zero contour shows changes in the magnetic lithologies and will coincide closely with geologic contacts assuming a steeply dipping interface. Thus this data may be used as a pseudo-geologic map.

VLF Electromagnetics

The VLF-EM method employs the radiation from powerful military radio transmitters as the primary signals. The magnetic field associated with the primary field is elliptically polarized in the vicinity of electrical conductors. The Herz Totem uses three coils in the X, Y, Z configuration to measure the total field and vertical quadrature component of the polarization ellipse.

The relatively high frequency of VLF (15-25) kHz provides high response factors for bodies of low conductance. Relatively "disconnected" sulphide ores have been found to produce measurable VLF signals. For the same reason, poor conductors such as sheared contacts, breccia zones, narrow faults, alteration zones and porous flow tops normally produce VLF anomalies. The method can therefore be used effectively for geological mapping. The only relative disadvantage of the method lies in its sensitivity to conductive overburden. In conductive ground to depth of exploration is severely limited.

The effect of strike direction is important in the sense of the relation of the conductor axis relative to the energizing electromagnetic field. A conductor aligned along a radius drawn from a transmitting station will be in a maximum coupled orientation and thereby produce a stronger response than a similar conductor at a different strike angle. Theoretically, it would be possible for a conductor, oriented tangentially to the transmitter to produce no signal. The most obvious effect of the strike angle consideration is that conductors favourably oriented with respect to the transmitter location and also near perpendicular to the flight direction are most clearly rendered and usually dominate the map presentation.

The total field response is an indicator of the existence and position of a conductivity anomaly. The response will be a maximum over the conductor, without any special filtering, and strongly favour the upper edge of the conductor even in the case of a relatively shallow dip.

The vertical quadrature component over steeply dipping sheet-like conductor will be a cross-over type response with the cross-over closely associated with the upper edge of the conductor.

The response is a cross-over type due to the fact that it is the vertical rather than total field quadrature component that is measured. The response shape is due largely to geometrical rather than conductivity considerations and the distance between the maximum and minimum on either side of the cross-over is related to target depth. For a given target geometry, the larger this distance the greater the depth.

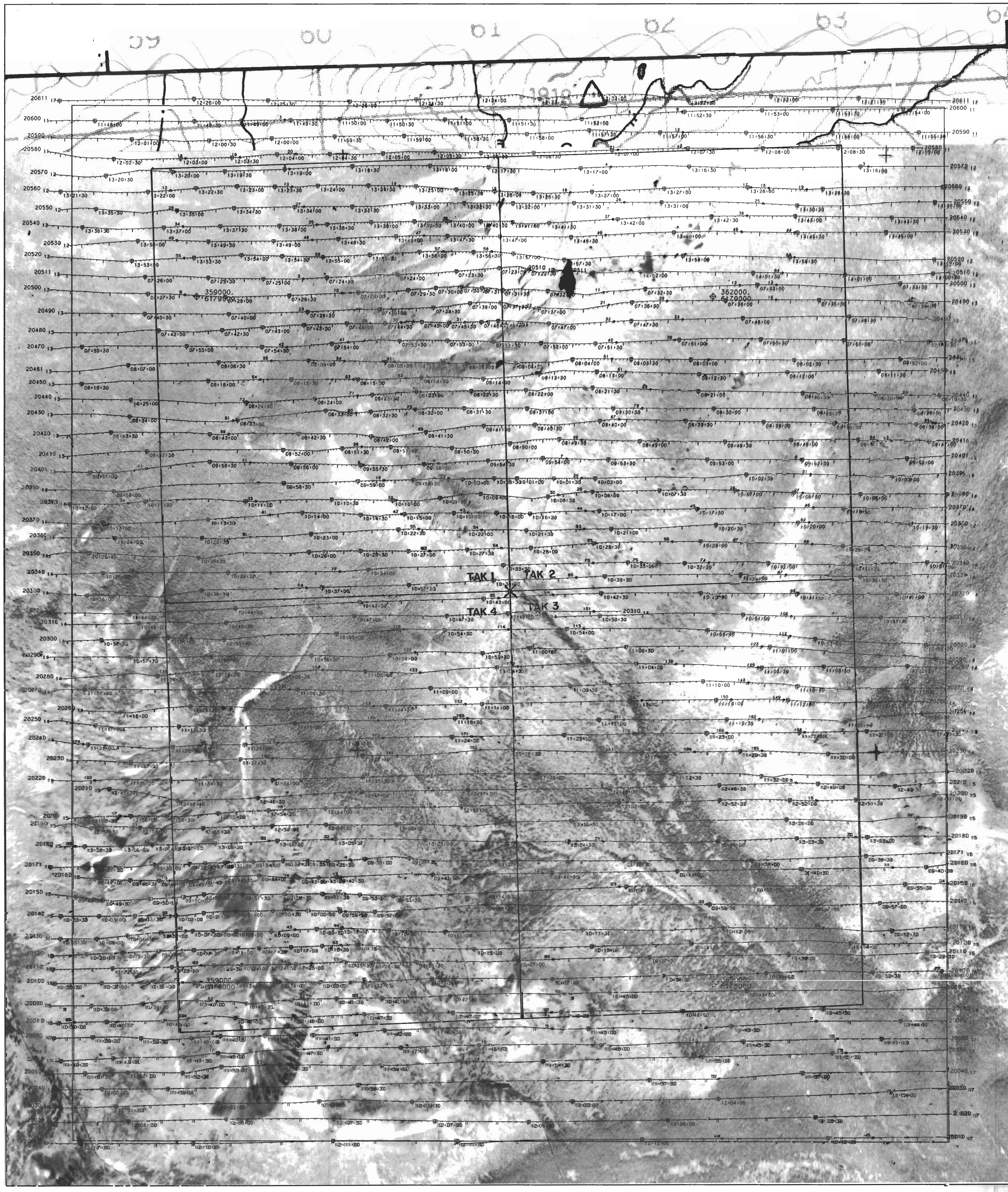
The amplitude of the quadrature response, as opposed to shape is function of target conductance and depth as well as the conductivity of the overburden and host rock. As the primary field travels down to the conductor through conductive material it is both attenuated and phase shifted in a negative sense. The secondary field produced by thisaltered field at the target also has an associated phase shift. This phase shift is positive and is larger for relatively poor conductors. This secondary field is attenuated and phase shifted in a negative sense during return travel to the surface. The net effect of these 3 phase shifts determine the phase of the secondary field sensed at the receiver.

A relatively poor conductor in resistive ground will yield a net positive phase shift. A relatively good conductor in more conductive ground will yield a net negative phase shift. A combination is possible whereby the net phase shift is zero and the response is purely in-phase with no quadrature component.

A net positive phase shift combined with the geometrical cross-over shape will lead to a positive quadrature response on the side of approach and a negative on the side of departure. A net negative phase shift would produce the reverse. A further sign reversal occurs with a 180 degree change in instrument orientation as occurs on reciprocal line headings. During digital processing of the quadrature data for map presentation this is corrected for by normalizing the sign to one of the flight line headings.

APPENDIX V

FIGURES 2 - 7



N

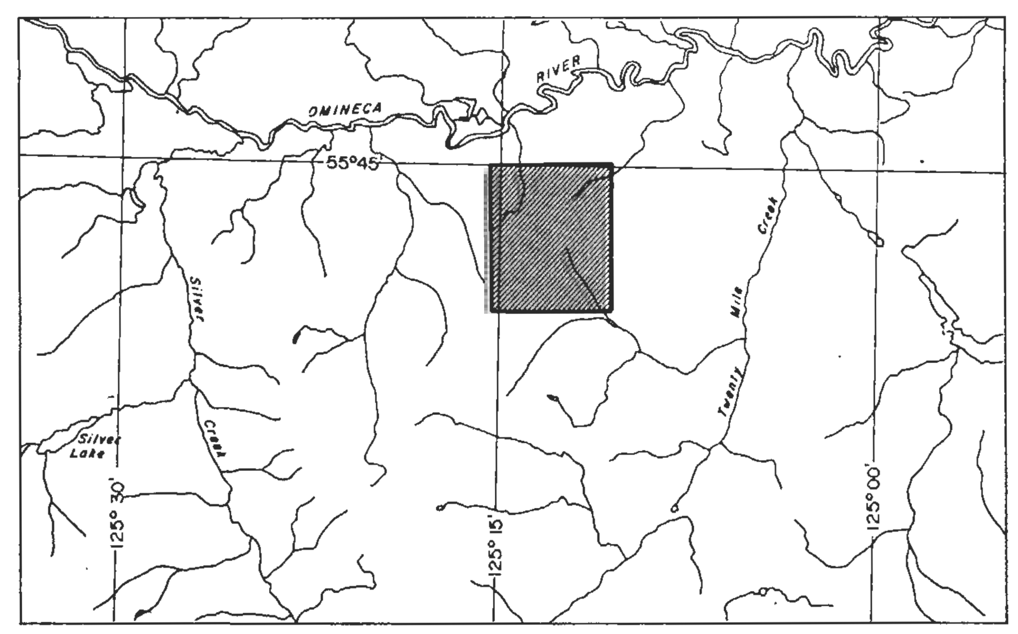
Flight Path

Navigation and recovery using a Motorola Mini-Ranger (MRS III) navigation system.

Average terrain clearance 60m
Average line spacing 100m

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,838



RIO ALGOM EXPLORATION

FLIGHT PATH

TAK CLAIMS MANSON CREEK

BRITISH COLUMBIA

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	JULY 1990
NTS No:	93 N/11E
MAP No:	2 — J9029 - 1

Flight Path

Navigation and recovery using a Motorola Mini-Ranger (MRS III) navigation system.

Average terrain clearance 60m
Average line spacing 100m

Magnetics

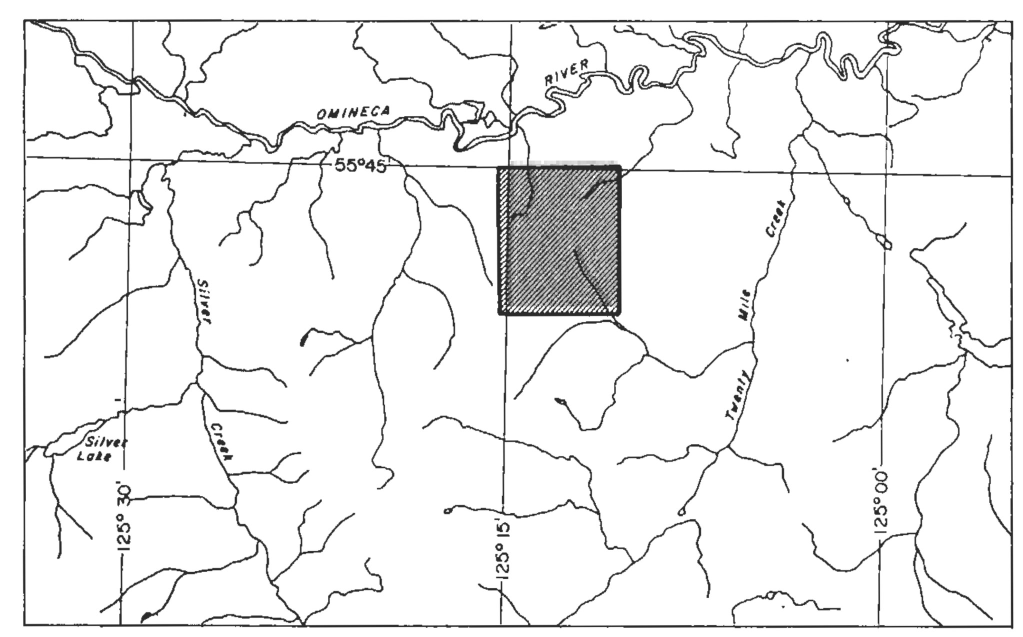
Total Field Magnetic Intensity Contours in nT.

Cesium high sensitivity magnetometer.

Sensor elevation 45m

Map contours are multiples of those listed below

- 5 nT
- 25 nT
- 100 nT
- 500 nT
- 2000 nT



RIO ALGOM EXPLORATION

TOTAL FIELD MAGNETIC CONTOURS

TAK CLAIMS MANSON CREEK

BRITISH COLUMBIA

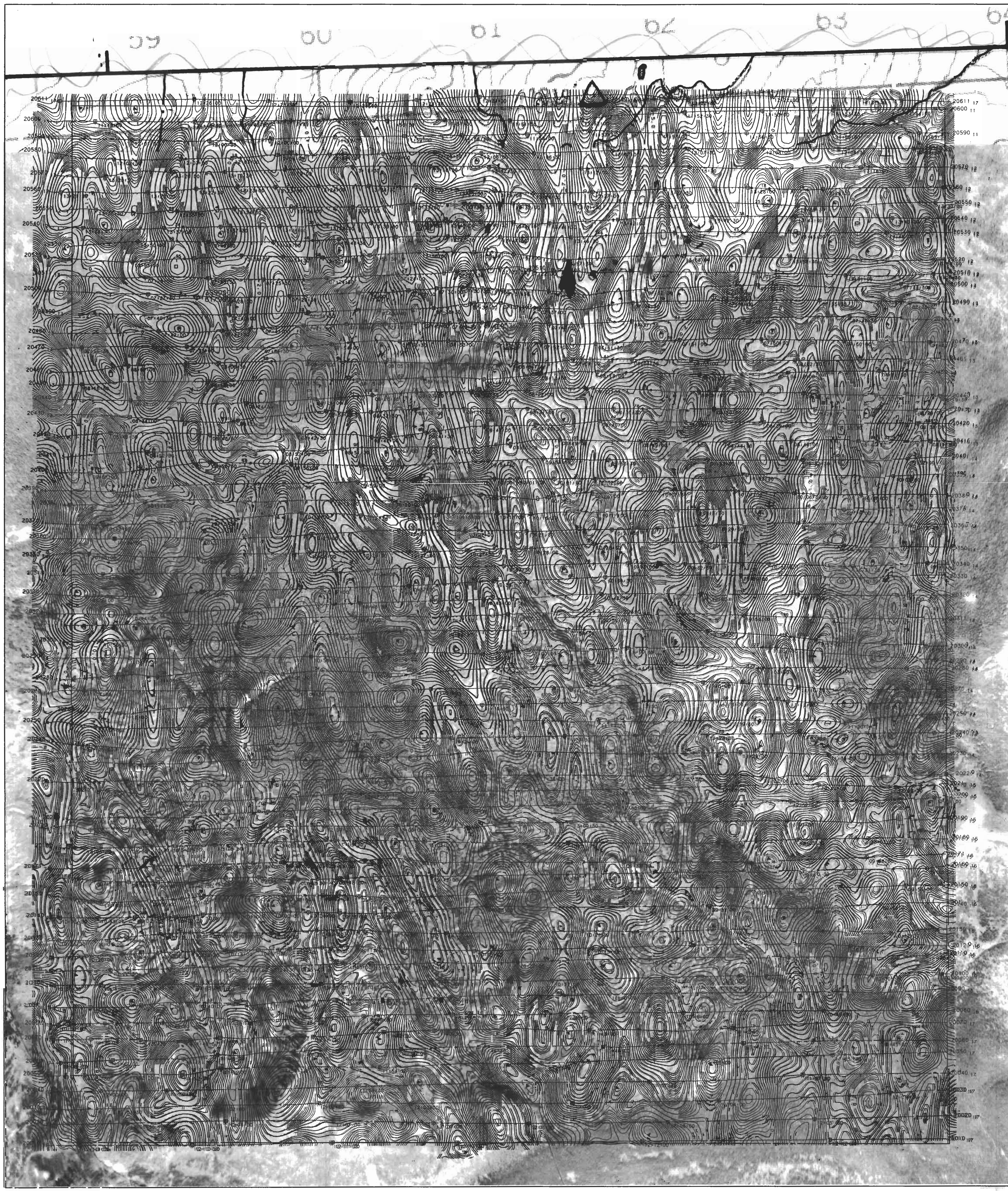
SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE:	JULY 1990
NTS No:	93 N/11E
MAP No:	3 J9029 - 1



Flight Path

Navigation and recovery using a Motorola Mini-Ranger (MRS III) navigation system.

Average terrain clearance 60m
Average line spacing 100m

Vertical Gradient

Vertical Magnetic Gradient calculated from the total field magnetic intensity in nT/m.

Cesium high sensitivity magnetometer.

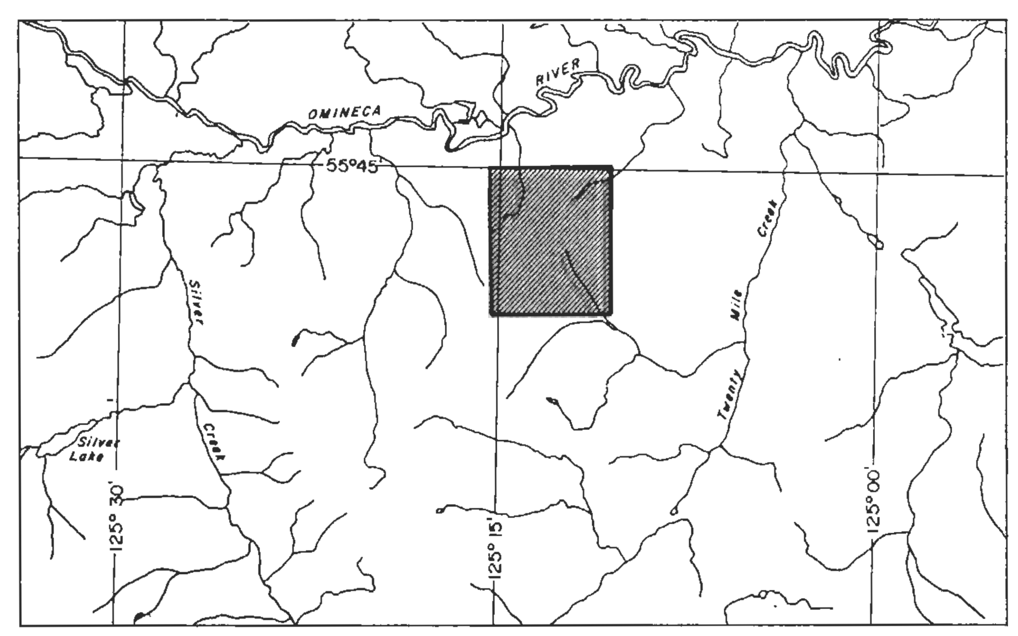
Sensor elevation 45m

Map contours are multiples of those listed below

- 0.2 nT
- 1.00 nT
- 5.00 nT
- 25.00 nT
- 100.00 nT

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,838



RIO ALGOM EXPLORATION

CALCULATED VERTICAL MAGNETIC GRADIENT

TAK CLAIMS MANSON CREEK

BRITISH COLUMBIA

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: JULY 1990

NTS No: 93 N/11E

MAP No: 4 J9029 - 1

N

Flight Path

Navigation and recovery using a Motorola Mini-Ranger (MRS III) navigation system.

Average terrain clearance 60m
Average line spacing 100m

VLF-EM

VLF-EM Total Field Intensity in percent.

Station: NLK Flight(s) 1-5
Jim Creek, Washington
24.8 kHz

Station: NSS Flight(s) 6-7
Annapolis, Maryland
21.4 kHz

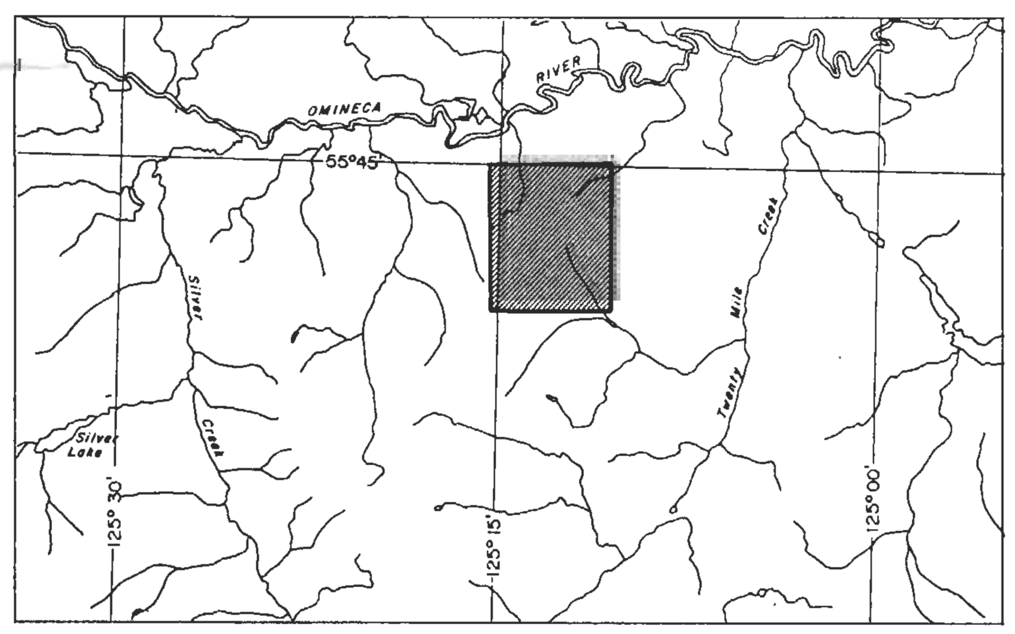
Sensor elevation 45m

Map contours are multiples of those listed below

2 %
10 %
50 %
250 %

GEOLOGICAL BRANCH ASSESSMENT REPORT

20,838



RIO ALGOM EXPLORATION

VLF-EM TOTAL FIELD CONTOURS (LINE CHANNEL)

TAK CLAIMS MANSON CREEK

BRITISH COLUMBIA

SCALE 1:10,000

0 330 660 1320 2640 Feet

0 100 200 500 1000 Metres

AERODAT LIMITED

DATE: JULY 1990

NTS No: 93 N/11E

MAP No: 5 J9029 - 1

LITHOLOGIES

INTRUSIVE ROCKS

2 — Hogem Intrusive
- 2a pink syenite
- 2b two feldspar porphyry
- 2c quartz monzonite

VOLCANIC ROCKS

1 — Takla Group Andesite
- 1a augite porphyry
- 1b limestone

ABBREVIATIONS

cp	Chalcopyrite
py	Pyrite
mt	Magnetite
po	Pyrrhotite
ep	Epidote
gl	Galena
ma	Malachite
az	Azurite
bi	Biotite
qz	Quartz
cb	Carbonate
hm	Hematite

SYMBOLS

- Rock sample
- Silt "
- Bedding
- " overturned
- Contact
- Fault
- Airborne magnetic high
- " " low
- Fossil locality

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,838

N.T.S. 93N/11

SCALE 1:10,000

200 100 0 200 400 600 800 Metres

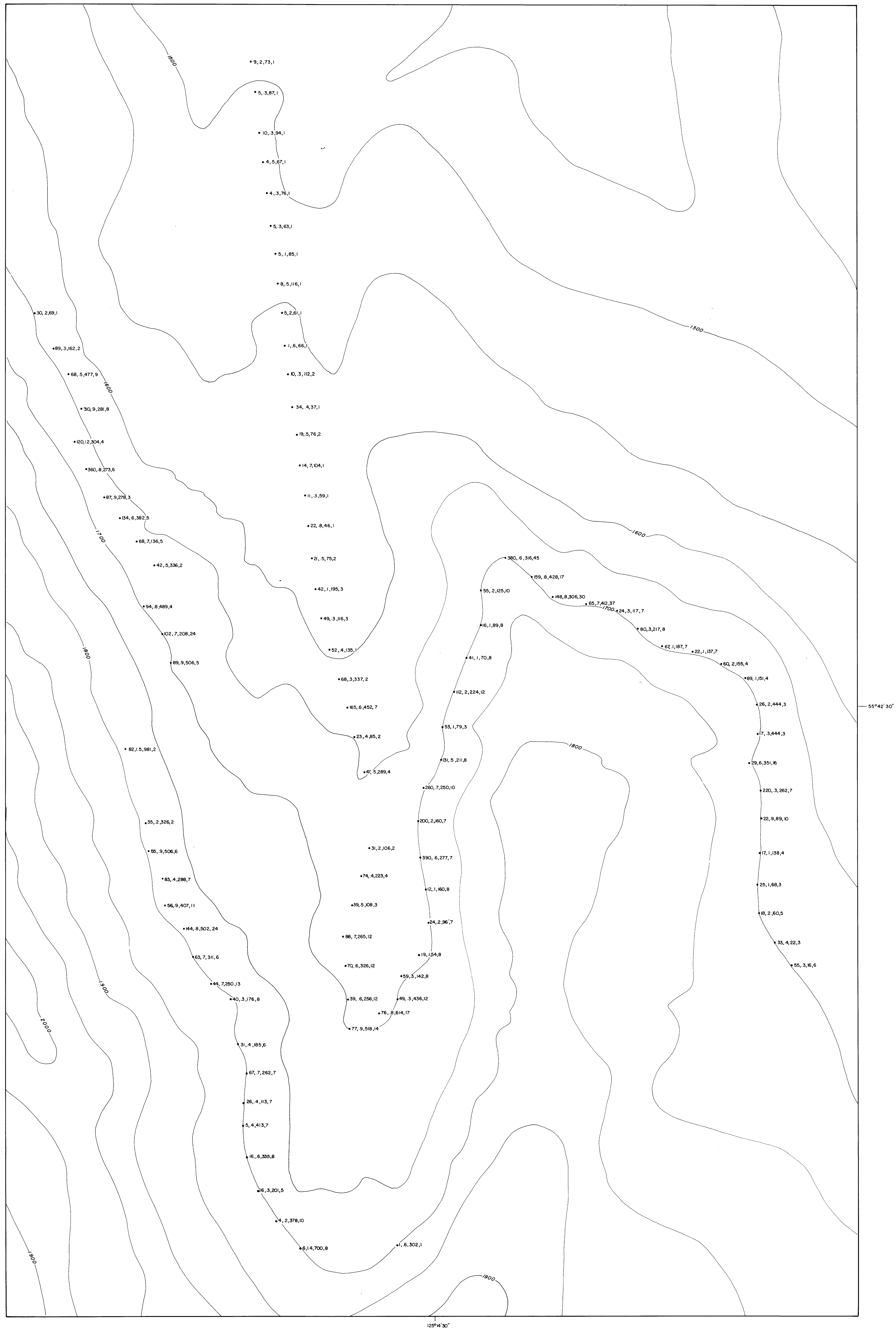
Rio Algom Exploration Inc.

TAK CLAIMS

PROPERTY PLAN, GEOLOGY

OMINECA M.D., B.C.

DATE	DRAWN BY	DWG.
DEC. 1990	GRC, SP, KD / Chong	6



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