87-624-.16278

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REPORT ON

ALBERT RIVER TUNGSTEN PROPERTY

ALBERT RIVER 82J/12E

GOLDEN MINING DIVISION

LAT 50°38'N - LONG 115°36'W 39'

FOR Owner Operator: DIA MET MINERALS LTD.

GEOLOGICAL BRANCH



C.E. FIPKE J.C. SUGGITT

C.F. MINERAL RESEARCH LTD. 1679 Powick Road KELOWNA, B.C.

FILMED

September, 1987

CONTENTS

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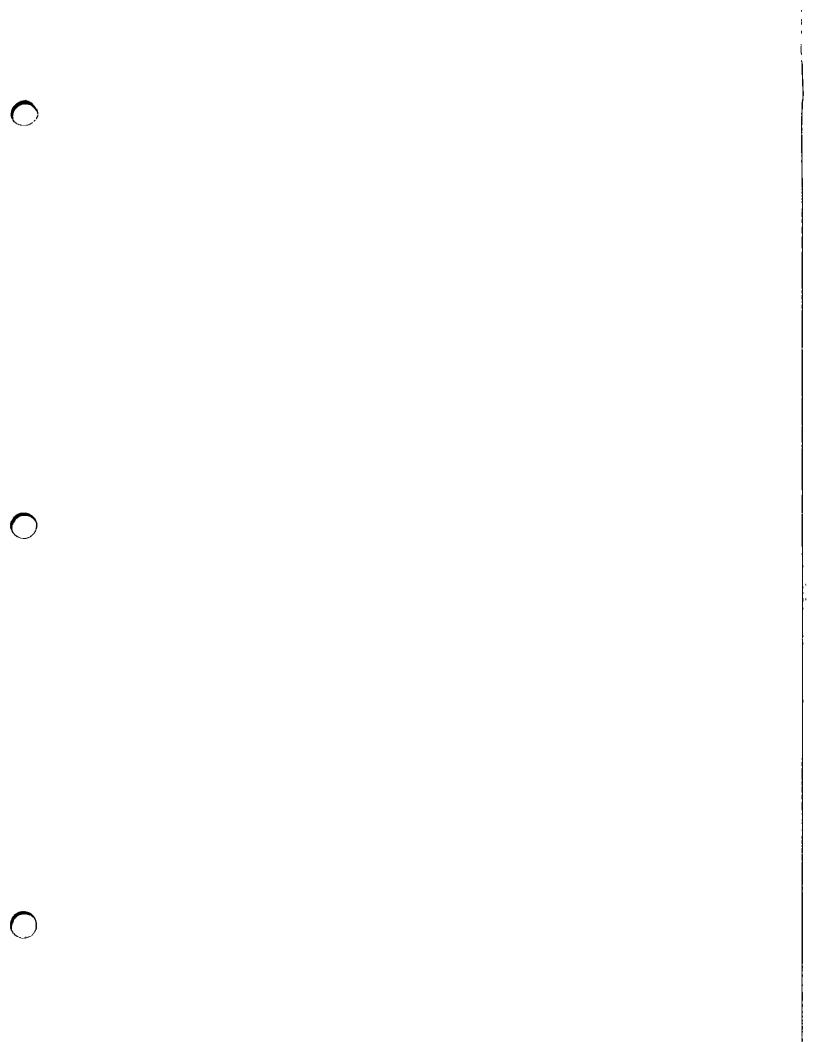
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	INTRODUCTION	1
	LOCATION, ACCESS, TOPOGRAPHY	2
	GEOLOGY Regional Geology Detailed Geology	4 4
A.	PREVIOUS WORK	
	GEOPHYSICAL SURVEYS Airborne (1981) Ground Magnetometer & Induced Polarization 1984	7 7
	GEOCHEMISTRY Introduction Geochemical Exploration	9 9
в.	PRESENT WORK	
	GROUND MAGNETOMETER SURVEY Introduction Topography & Ground Conditions Instrumentation Field Procedure & Treatment of Data Discussion of Results & Interpretation Conclusions & Recommendation	11 12 12 13 14 15
	HEAVY MINERAL PROGRAM Field & Laboratory Methodology	16
	RESULTS	17
	CONCLUSIONS	18
	RECOMMENDATIONS	19
	FIGURES 1 Index Map 2 Claims Map Location 3 Geologic Map 4 Sample Locations & Mag Survey Lines 5 Central Claims Area Sample Locations 6 Heavy Mineral Samples & Magnetic Grid Location	Мар
	APPENDIX A Statement of Expenditures B Statement of Qualifications	
	TABLE 1 N.A.S. Analysis Results	

INTRODUCTION

Ground magnetometer geophysics, line cutting, prospecting and heavy mineral geochemical sampling were completed on the W-Group claims during the summers of 1986 and 1987. The W-Group of claims consists of seven contiguous claims totalling 84 units. The claims are 100% owned by Dia Met Minerals Ltd; C.F. Mineral Research Ltd. is currently the operator.



LOCATION, ACCESS, TOPOGRAPHY

The DINGBAT, BURB, BARBI, ASH, CHESTER, ZIRKON and RACHEL claims are all located Latitude $50^{\circ}38$ 'N, Longitude $115^{\circ}35$ 'W; NTS 82J/12E in the Golden Mining Division, approximately 75 kilometres east of Radium B.C. The claims lie near the west headwaters of Albert River between Tangle Peak and Albert River (Figures 1 & 2)

The claims are accessible by car on 40 kilometres of good logging access road leaving the east side of Sinclair Canyon Highway #93 at a point 4 kilometres north of Swede Creek. The logging road system leads southeasterly, crossing the Kootenay River at Yearling Creek, to Palliser River, a distance of about 20 kilometres. The road leads easterly about 8 kilometres to the Albert River and then northerly along the river 12 kilometres to the Albert River tungsten property.

There is also a poorly maintained logging road that branches up Cochran Creek about 4 kilometres south of where the main logging road crosses the Kootenay River. Difficult four wheel drive access is possible for 11 kilometres up Cochran Creek to a point about 2 kilometres west of the Zirkon claim. The said point is about 29 kilometres from Highway #93 and about 15 kilometres from hyrdo power lines.

The northern part of the claims are accessible by driving from the Kootenay River junction 12 kilometres northwesterly up the good gravel Cross River road. One then proceeds southeasterly for 12 kilometres over a poorly maintained logging road. Once over Miller Pass one proceeds southerly for an additional two kilometres over another poorly maintained logging road to the

- 2 -

central part of the Barbi claim.

The east side of the claim block is on the west side of Albert River at an elevation of 1300 metres and rises steeply to the west to over 2600 metres. The central portion of the property is difficult to traverse because of steep topography and dense bush.

GEOLOGY

Regional Geology

The compilation geologic map, Geological Survey of Canada open File No 634, Kananaskis Lakes indicates the general Albert River area is underlain by Cambrian Chancellor Division "d" slate and limestone on the west in conformable contact with Division "c" isoclinally folded slate, limestone, dolomite and silty members. These rocks are shown in southwest dipping fault contact on the east with undivided Middle Camprian carbonate within a zone of facies change.

Detailed Geology

The field mapping results are compiled on the geological map (Figure 3) and cross section (Figure 3). The current results indicate that three sections of Middle Cambrian Chancellor Group marine sedimentary rocks outcrop on the claims. The basal section (Chcp) consists of a sequence of light and dark thin and medium-bedded argillaceous limestone with local beds of calcareous argillite containing round limestone nodules. The basal section is conformably overlain by a locally non or weakly calcareous grey shale or locally sericitic pelitic phyllite (Chcp). The grey shale section appears conformably overlain by a commonly cream colored thick-bedded to massive limestone (Chml).

A (1 to 20 metres thick) pyritic sileous aphanitic sill unit(s) conformably intrudes the basal marine carbonate and argillite unit in two locals.

The marine sedimentary and sill units are tightly isoclinically folded about gently plunging to subhorizontal NNW or SSE trending fold axis with NNW trending and steeply (50 - 80°) west dipping axial planes.

The pelitic phyllite unit is intensely spotted hornfelsed at the south and east edges of the small lake in the southeast parts of the claims. The heavy mineral concentrates from this local contain abundant medium green diopside and andalusite. Traces to minor quantities of medium green diposide and andalusite are also observed in heavy mineral concentrates at sites collected downstream from the magnetic geophysical high anomaly over the basal argillaceous limestone unit. Dr.S.L. Blusson, who completed his Ph.D thesis on the Geology of the Can Tung Area, Yukon, states that such minerals occur outward from skarn areas in proximity to intrusives.

The basal argillaceous limestone and sill units contain local zones of abundant guartz-carbonate veins and dykes that range to about 1 to 2 metres thick. Such veins are rare or absent up and down strike in the same Chancellor host strati-The veins and dykes are, for the most part, confined graphy. to the axial plane cleavages of folds that occur in all the Chancellor marine sedimentary units and sills. In a few cases quartz lenses conformably follow thin beds of minor folds. In some of these cases the folded quartz lenses thicken adjacent quartz carbonate viens infilling axial plane cleavages. In other cases quartz carbonate veins and dykes crosscut the axial plane cleavage suggesting the veins were emplaced at some time after the formation of the axial plane cleavage. Locally veins and dykes contain minor amounts of epidote and pyrite with chlorite alteration envelopes or pyrite and chalcopyrite with muscovite sericite alteration envelopes. In some minor cases

- 5 -

the quartz carbonate veins contain minor amounts of galena or sphalerite. Moderate amounts of fine scheelite were located in a marble dyke talus block via U.V. lamp night prospecting directly downslope from the highest ground magnetic area in the central portion of the claims. PREVIOUS WORK

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GEOPHYSICAL SURVEYS

Airborne (1981)

Aerodat flew a total field magnetic survey of the Albert River property in August, 1981. A sonotek proton precision magnetometer with a Varian toroidal sensor was used to measure the magnetic field. The instrument was operated at a 1 second sample rate with a sensitivity of 0.1 gamma. A base station with 1.0 gamma sensitivity was operated in analog mode to monitor diurnal activity. A Sonotek D S 1200 digital data system was used to record the aeromagnetic data. The sensor was maintained as closely as possible to 200 feet above terrain by use of a Hoffman radar altimeter.

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The anticipated contour interval for the magnetic map was 10 gammas. However as compilation progressed the subtly of variation required higher resolution. No marked anomalous areas were evident as a result of this survey.

Ground Magnetometer and Induced Polarization Survey (1984)

During the 1984 field season, a Ground Magnetometer survey and an Induced Polarization test were carried out. The purpose of this survey was to verify and pinpoint a small airborne anomaly which was coincident with anomalous geochemical tungsten values. The Induced Polarization survey, attempted over the magneticgeochemically anomalous area, had to be abandoned due to the low signal-to-noise ratio caused by highly conductive shales.

- 7 -

The magnetic survey detected two small dipolar anomalies that appear to occur along the margin of a large subtle magnetic high (ie greater than 505 gammas) which is circular in shape and approximately 550 m in diameter (Figure 4). There is the distinct possibility that this feature could represent a buried intrusive body (plug or pluton). The two dipolar features within this subtle magnetic high could be caused by local near surface concentrations of pyrrhotite.

GEOCHEMISTRY

Introduction

The procedures for collecting, preparing concentrates, analyzing stream sediment samples and the physical factors which affect the number of grains of heavy minerals in a given sample preclude precise quantitative comparisions between samples. However, qualitative comparisons among samples, particularly presence or absence of specific heavy minerals is an extremely effective exploration tool and is a refinement of the procedure used by prospectors to locate gold lode by panning upstream until the source is located.

Geochemical Exploration

Initially, C.F. Mineral Research Ltd. carried out extensive heavy mineral stream sediment and geological reconnaissance surveys in the Rocky Mountains. This led to the discovery of a number of prospects including the Albert River tungsten property which was staked in 1980. Routine ultraviolet lamping of stream sediment concentrates showed one sample, Ell7, contained more than 300 grains of scheelite. The discovery samples were analyzed by N.A.S. Laboratory, Hamilton, Ont. (Rpt. 4077-87). Sample Ell7 gave the highest W value of 34,000 ppm. In all 13 of the 35 samples collected were anomalous.

During the summer of 1984, 79 heavy mineral stream sediment and 4 conodont samples were collected (Figure 3 & 4). The conodont samples, although barren of conodonts, were found to · · ·

contain quantities of sericite, crystalline chlorite and andalusite. The mineralogy consists of alteration minerals related to a distant rather than near surface intrusion.

The heavy mineral samples were analyzed for W-Au-As-Cu-Pb-Zn-Mo-Sn and a scheelite grain count was taken. The results demonstrate that the central claims area centered about the magnetic high are intensely anomalous in W, moderately anomalous in Cu, with some weak spot highs in Au and Pb. The areas surrounding the central magnetic area in a seemingly zonal manner are moderately to strongly anomalous in Cu and Pb; moderately anomalous in Au, As and Zn; and weak to moderately anomalous in Mo.

Even more intense W anomalies with moderate Cu and some weak spot highs in Au, Pb and Zn were obtained in an area centered on both sides of the ridge about one kilometre due north of the ground magnetic high area. Moderately to strongly anomalous Au values and some weakly anomalous Zn values appear to zonally surround this area.

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- 10 -

PRESENT WORK

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GROUND MAGNETOMETER SURVEY*

Introduction

During the period October 3 - 15, 1986, a Ground Magnetometer survey was executed on the Albert-Cross property on behalf of the owner, Dia Met Minerals Ltd. The grid covered a portion of the BARBI claim, W Group (Figure 5).

The survey was carried out by P.P. Nielsen, geophysicist and author of this report. Field work and logistics were aided by the efforts of D. Tomelin an employee of C.F. Mineral Research Ltd.

The purpose of the survey was to attempt to detect the presence of a buried intrusive body which might be related to scheelite mineralization supported by high geochemical soils within the grid area.

The magnetometer survey was abborted half way through due to a faulty instrument. Upon receipt of a serviceable one, the project was resumed and completed. This delay plus the conditions resulted in a high cost survey in view of the actual number of line-kilometres traversed.

The following description (pages 11 - 15) was taken from a report written by P.P. Nielsen, Geophysicist in February, 1987 for Dia Met Minerals Ltd.

Topography and Ground Conditions

The grid area varies in elevation from 1860 meters at the N.E. corner to 2200 meters at the extreme S.W. corner. Respectively, the terrain varies from moderate to extremely precipitous.

The lower half of the grid is covered by conifers although portions have been logged off. The upper half occurs in a cirque consisting of snowfields interrupted by rock bluffs, ridges and slide areas containing "tag" alder and flanked by scrub conifers.

At the time of the survey the ground was covered with from six to eighteen inches of heavy wet snow. This, plus the steep terrain, resulted in very difficult survey conditions and low productivity. Many grid stations could not be located and their positions had to be estimated.

Instrumentation

The grid was surveyed using a Barringer GM .122 Proton (total field) magnetometer and a Barringer GM 123 Base-station Recorder.

The GM 122 was strapped to the operator's chest with the censor attached to a hald-held staff extended at arm's reach from the body.

The GM 123 consisted of a similar total-field magnetometer with an analogue (strip chart) recorder. A two second cycle interval and a chart speed of five minutes per centimeter was used.

Typical background readings at the base-station were from 58,390 to 58,430 gammas absolute total field.

Field Procedure and Treatment of Data

Readings were taken using the GM 122 portable magnetometer along flagged lines spaced 100 metres apart using a station interval of 20 metres. The gamma values and time of readings were recorded in a metal-free notebook.

The readings were corrected for diurnal variation and day-to-day variation by consulting the Base-station recorder. As an extra control, all parts of survey lines were looped and the Baseline was run a number of times.

The corrected readings were plotted on a plan map (Scale 1 cm. = 25 metres or 1:2500) and contoure using an interval of 20 gammas. A datum of 58,000 gammas was used with the values ranging from 58,353 to 58,477 gammas shown with the first two digits dropped for reasons of clarity.

A total of 321 readings were plotted and contoured.

Discussion of Results and Interpretation

The total magnetic relief over the entire grid was 124 gammas which is similar to that encountered on the adjacent grid approximately 1.6 kms. to the south described in the 1985 report as the "Central Claims Area".

The values and contour map indicate an area of quiet, uninteresting magnetic relief from Line 5S to Line 12S. The variations in these readings could be explained as being caused by terrain effects although not necessarily entirely.

The remaining half of the grid is considerably more interesting and complex consisting for the most part of small highs and lows which are difficult to explain or interpret. These one line and two line 20 to 40 gamma "anomalies" appear to be caused br influenced by the 1:5 grid bias, terrain effects, and possibly by the fine 20 gamma contour interval used.

However, because the target sought (i.e. buried intrusive) could be deeply buried, of small lateral dimension relative to the line spacing used and of low magnetic susceptibility, these results could be significant.

All features which peak to in excess of 58,460 gammas are considered worthy of comment, especially where they occur straddling two or more adjacent survey lines. 'Two such areas or "anomalies" appear to meet these criteria.

One is the area covered by Line 0 and Line 1S west of the Baseline. This whole area could be underlain by favourable intrusive rocks and the area to the northeast is still suspect.

The other interesting area is immediately east of the small pond which is situated just west of the Baseline on Line 3S. Although this "high" is basically on one line feature, its shape and location could make it important. Further intermediate lines and extensions of existing lines are needed to shed more light on this as well as the other area.

Conclusions and Recommendations

In view of the size and depth:of the target sought and the occurrence of strongly anomalous heavy mineral samples coincident with the two magnetic features discussed, more work appears to be warranted on this property particularly north of Line 65.

It is, therefore, recommended that the two areas mentioned above be further delineated magnetically to facilitate spotting optimum drill targets.

The area east of the pond should be detailed magnetically by installing and surveying existing extended lines as well as intermediate lines (i.e. all lines here would be spaced 50 metres apart).

Similarly, the other area in the northeast quadrant should be extended to at least Line 2N with intermediate lines up to at least Line 2S.

HEAVY MINERAL PROGRAM

Field & Laboratory Methodology

About 9 kg. of -20 mesh stream sediment samples were collected from placer favourable sites (D.M.1 & 2, Fig. 6) in streams draining the claims group. Five 10 - 15 kg. samples of unsieved talus samples (WT 1 to 5) were collected on a northtrending line on the Rachel claim (Fig. 2). The bulk samples are transported to C.F. Mineral Research Laboratory in Kelowna, B.C. where they are wet sieved, washed and jigged into -20+35, -35+60 and -60 mesh rough concentrates. Up to 1000 grams of -20+35, 1200 gms. of -35+60 and all of -60 mesh rough concentrates are then treated by tetrabromoethane and dilute methyline iodide heavy liquids to produce specific gravity fractions intermediate to tetrabromoethane (S.G. 2.96) and methyline iodide (S.G. 3.3).

The heavy specific gravity fraction (+3.3 S.G.) is subjected to three electromagnetic separations so that heavy magnetic, paramagnetic and nonmagnetic fractions of primary ore minerals are produced. The resultant heavy magnetic fractions underwent U.V. lamp inspection for the presence of scheelite. The -60 mesh heavy non magnetic fractions were submitted for Au,+26 analysis via the delayed neutron activation method at Nuclear Activation Services Ltd. of Hamilton, Ontario. Owing to high rare earth interference, samples WT 1 and WT 2 were re-analysed for Au using the standard fire assay geochem method of the N.A.S. laboratory. Although instructed otherwise, the remaining undestroyed -60 HN concentrates were accidently discarded.

RESULTS

The sample site localities are plotted on Figure 5. No scheelite was observed in the U.V. Lamp treatment of any of the heavy non-magnetic concentrates of stream or talus samples. The neutron activation results and gold fire assay geochem results of WT 1 and WT 2 are given as Table 1. The N.A.S. results of stream sediment concentrate sample D.M.1, -60 HN are not yet available at the time of completing this report.

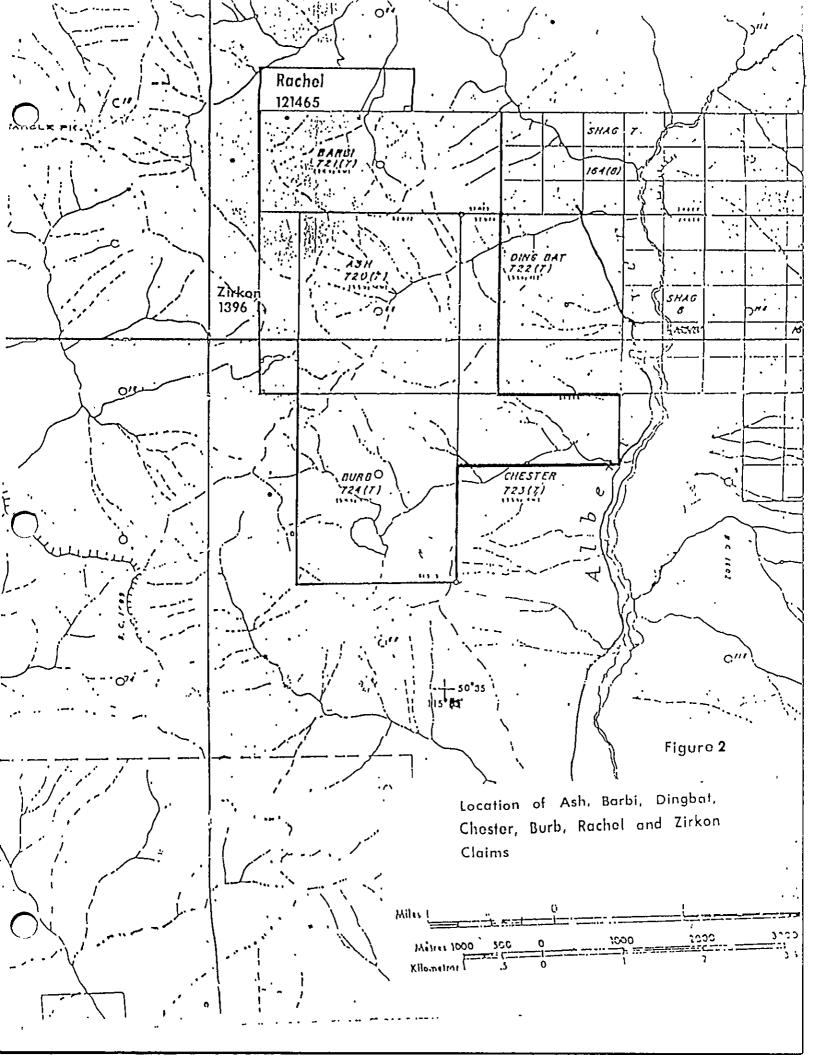
CONCLUSIONS

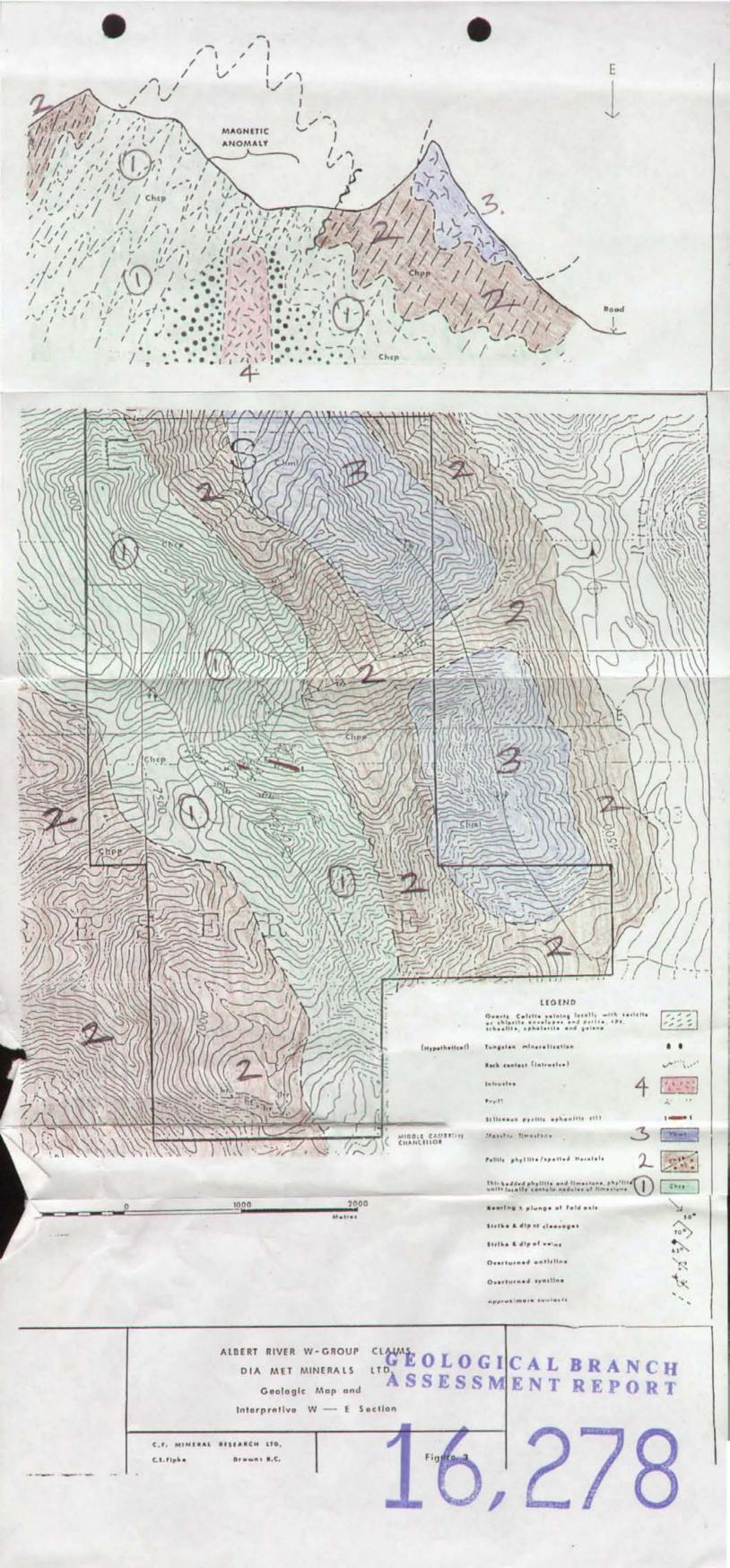
A zone weakly to moderately anomalous gold and extremely highly anomalous Ce and La rare earths has been detected in the heavy non-magnetic concentrates of stream samples for a distance of about 400 metres north of the Rachel-Barbi claim boundary. At the claim boundary previous heavy mineral concentrates of stream sediments analysed 50,000 ppb Au but were unanalysed for rare earths. Immediately south of this Au - rare earth anomaly occurs large areas of outstandingly anomalous (6 to 12%) W as scheelite with moderately anomalous gold but unknown amounts of rare earths. The high rare earths and gold with outward Au - W are suggestive of presence of a near surface alkaline or carbonatitic intrusive with outward Au - scheelite This contention is in a general way supported by skarns. increasing magnetic anomalies near the north Barbi-Rachel claim boundary.

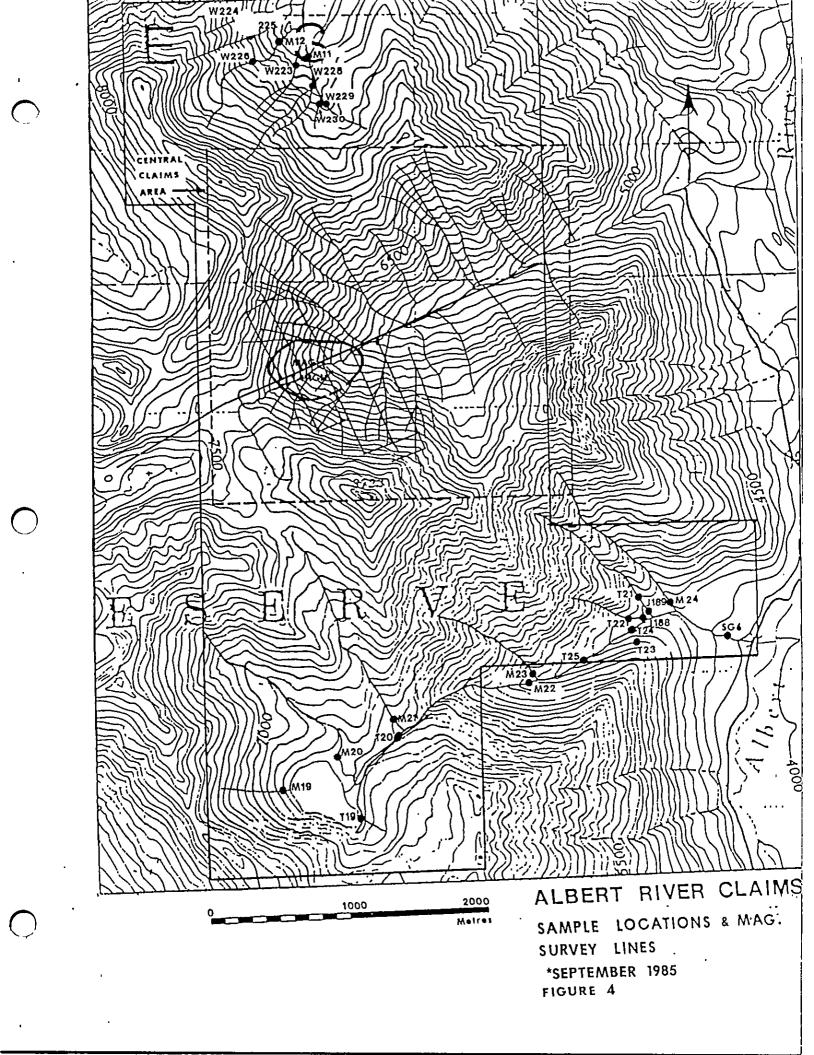
RECOMMENDATIONS

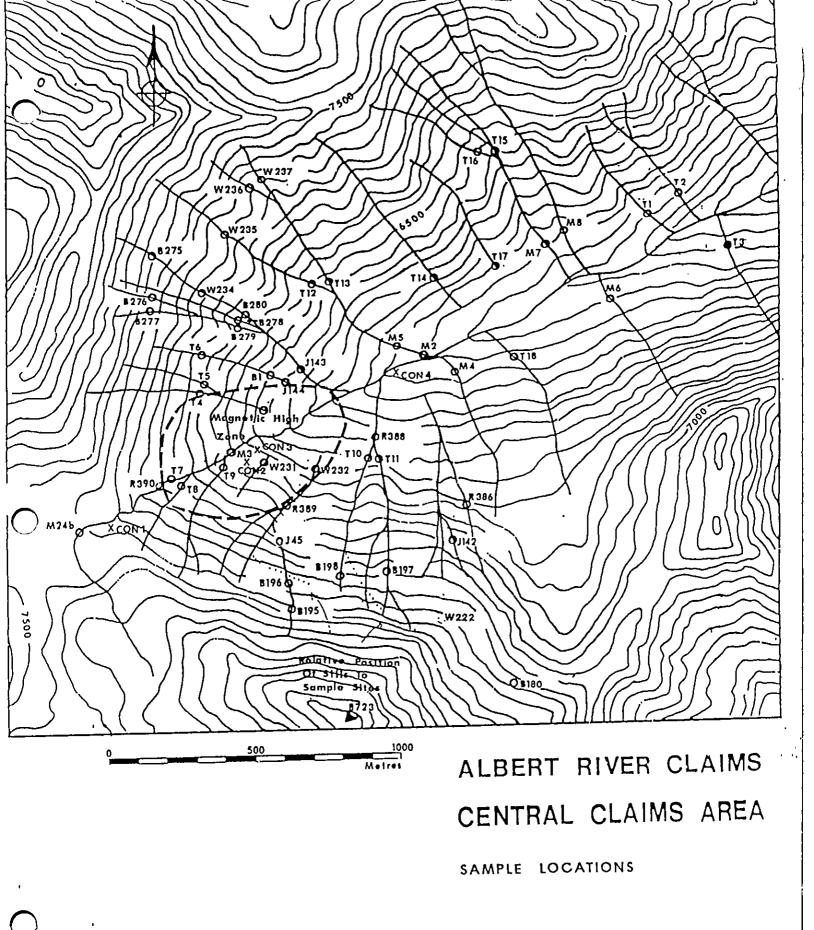
Additional ground magnetic geophysics is required and long north-south lines are needed within the high anomalous magnetic zones near the Barbi-Rachel claim boundary and within the rare earth anomalous area of the Rachel claim. Prospecting with the objective of locating skarn or near surface intrusives is required in the areas of highly anomalous Au - W and rare earths. Additional geologic structural mapping should also assist in establishing drill targets in the north and central parts of the claims.



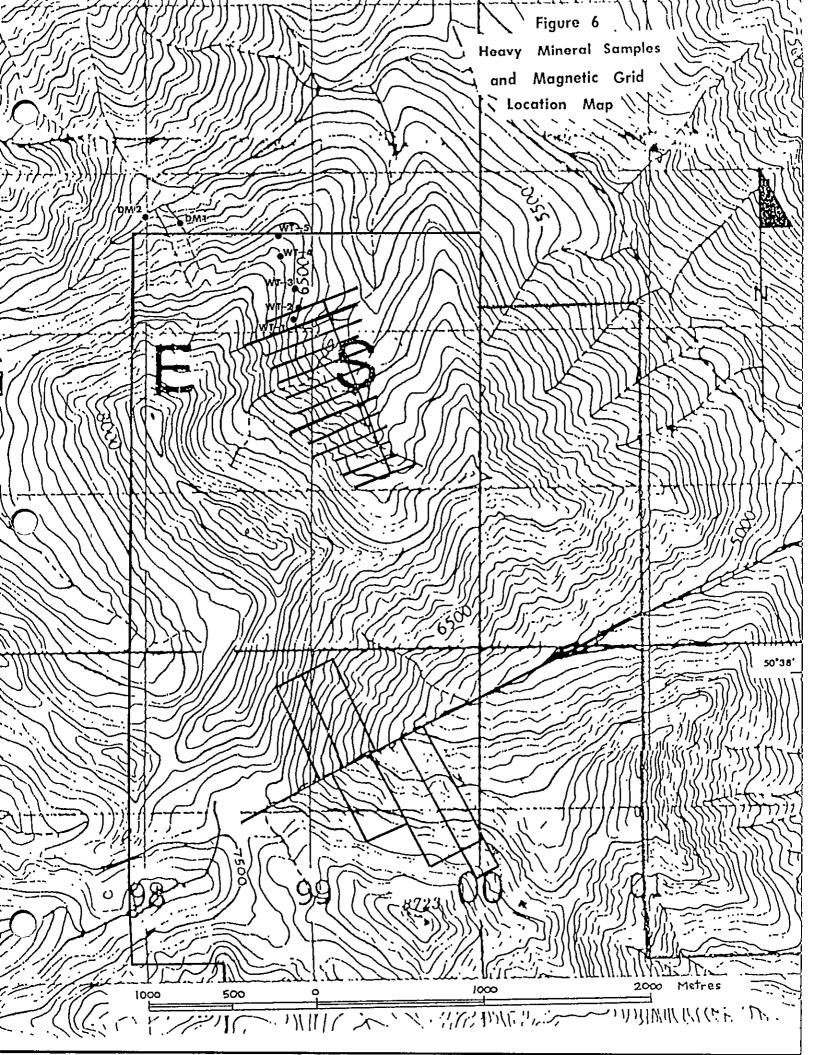








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APPENDIX "A"

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	STATEMENT OF EXPENDITURES BARBI, ASH, DINGBAT, CHESTER, BURB, ZIRCON, RACHEL CLAIMS	•
1.	Geophysical Survey (Oct. 3-15, 1986) 8 days geophysist, P. Nielsen, @ \$250.00 /day including mobilization-demobilization	\$ 2,000.00
	2 assistant salaries - D.Tomelin, B.Carr for 11 days. line cutting, magnetometer operator helper including mobilization- demobilization @ \$150./day	3,300.00
	22 days 4x4 truc k rental @ \$60./day rental 2 chainsaws @ 18.75/day x 20 days total gas and oil for above	1,320.00 750.00 566.11
	total hotel	203.31
	rental of camping equipment and trail bike	715.00 350.00
	Total meals and food	739.48
	Base and portable magnetometer rental for 14 days	2,120.00
	Miscellaneous supplies; batteries for mag, plastic bags, topo fill etc.	152.52
	Communications; total radio rental and long distance calls	380.00
	SUB TOTAL	\$12,596.42
2	Geophysical Report Preparations	
	2 days geophysist, P. Nielsen professional time @ \$250./day	500.00
	20 hrs drafting @ 20./hr.	400.00
	typing and copying	90.00

SUB TOTAL

990.00

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3	3.	Collection of Heavy Mineral Samples (June 12, 13, 1987)			
		4 days geological assistants salaries @ \$150./day, M.Fipke & D. Tomlin	\$	600.00	
		Food, travel etc.		200.00	
		Gasoline	_	60.00	
	I	SUB TOTAL		860.00	\$ 860.00
4	4.	Processing Heavy Mineral Samples at C.F. Mineral Research Ltd., Kelowna, B.C.			
		Washing and drying 6 samples @ \$7.80 each		46.80	
		Wet sieving, sizing and semi gravity concentrations - 6 @ \$14.30 each		. 85.80	
		TBE separations using 0.5 - 1.0 micron double filtration: first 3000 c sized concentrate @ \$11./sample 2 additional 3000 c sized concentrates @ \$9.00each/sample		. 66.00 108.00	
		M.I. separations using 0.5 - 1.0 micron double filtration: first sized concentrate @ \$20./sample 2 additional sized concentrates @ \$15.each/sample		120.00 180.00	
		Electromagnetic separations: 2 sized heavy concentrates @ \$6/50ea/sample		78.00	
		Weighing 36 resultant concentrates to 0.02 gm tare accuracy @ \$0.65 each		23.40	·
		Vialing, coding and weighing to 0.001 gm. accuracy, 6 concentrates @ \$2.60 each		15.60	
		Prepaid shipping charges		16.00	
		SUB TOTAL		:	\$ 739.60

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Summary of Expenditures

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Geophysical survey Geophysical Report preparation Collection of Heavy Mineral Samples Processing Heavy Mineral Samples	\$12,596.42 990.00 860.00 739.60
	15,186.02
Please withdraw from PAC account of Dia Met Minerals Ltd.	913.98
TOTAL EXPENDITURES to be applied to claims Barbi, Ash, Dingbat, Chester, Burb, Zirkon and Rachel (one year)	\$16,100.00

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APPENDIX "B"

STATEMENT OF QUALIFICATIONS

The accompanying report and geochemical analysis was completed by geologists C. Fipke and J.C. Suggitt of C.F. Mineral Research Ltd.

C. Fipke is a BSC Honors Geology graduate of the University of British Columbia. Between 1970 and 1977, C. Fipke worked as a geologist involved to a large extent in heavy mineral exploration and research for Kennecott Copper in New Guinea, Samedan Oil in Australia, Johannesburg Consolidated Investments in Southern Africa and Cominco Ltd. in Brazil and British Columbia. C. Fipke and L.M. Fipke organized C.F. Mineral Research Ltd. in 1977. Currently the C. F. Mineral Research heavy mineral laboratory which employes 10 to 15 people is involved in heavy mineral exploration and processing on behalf of many international companies.

J. C. Suggitt is a BSc Geology graduate of the University of British Columbia, 1986.

TABLE I

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AG	PPM	INTERFER	INTERFER	INTERFER	590	<29
AU	PPB	INTERFER	INTERFER	2800	970	<150
BA	PPM	28 00 0	INTERFER	INTERFER	17000	2500
C A	2 2	INTERFER	INTERFER	INTERFER	INTERFER	< 3 7
сo	ррм	INTERFER	INTERFER	INTERFER	INTERFER	< 30
CR	PPM	3400	1500	<730	900	<120
FE	%	<5.29	<4.35	<6.29	7 • 11	6.22
r c HF	Ϋ́ΡΡΜ	310	340	• 210	190	<13
нс МО	PPM	INTERFER	INTERFER	INTERFER	INTERFER	<75
NA	*	INTERFER	INTERFER	INTERFER	INTERFER	0.51
NI	PPM	22 000	14000	17000	<7800	<2200
58	PPM	<25	2 8	<22	37	<3.9
5 D S C	РРМ	11.9	15.3	8.7	7.9	11.4
SE	PPM	<430	<370	<5	<280	< 8 7 '
			INTERFER	INTERFER	INTERFER	<23
TA	ррм	INTERFER 1300	1300	1500	1000	140
тн	PPM		65.1	INTERFER	INTERFER	<11.3
U	PPM	INTERFER	INTERFER	INTERFER	INTERFER	43
W	PPM	<4	INTERFER	INTERFER	<1000	<410
ZN	PPM	INTERFER	INTERFER	Interview.		
				>49000	>35600	5230
LA	PPM	' >51700	>42500	>52500	>39100	5000
CE	PPM	> 56 30 0	>45700	2540	1910	300
SM	РРМ	2780	2320	630	500	65+1
EU	РРM	623	492		72.6	11.5
4 B	PPM	140	80•4	INTERFER		
LU	PPM	INTERFER	6 • 2 2	9.74	5 - 84	2 • 02

