

2649

GEOPHYSICAL REPORT
ON A
MAGNETOMETER SURVEY
"B" AND "J" CLAIM GROUPS
ATLIN MINING DIVISION, BRITISH COLUMBIA

L. G. WHITE, P. ENG.

<u>CLAIM GROUP</u>	<u>CLAIM NAME</u>	<u>RECORD NUMBER</u>	
Group "B"	BSJ 1 - 8	13541K - 13548K	
	BSJ 17 - 20	13557K - 13560K	
	BSJ 31 - 32	13571K - 13572K	
	BSJ 34 - 36	13574K - 13576K	
	BSJ 43 - 48	13583K - 13588K	
	BSJ 69 - 74	13847M - 13852M	
	BSJ 105 - 110	13883M - 13888M	
	BSJ 119	13897M	
	BSJ 121	13899M	
	BSJ 123	13901M	
	BSJ 125	13903M	
	BSJ 127	13905M	
	Group "J"	BSJ 9 - 16	13549K - 13556K
		BSJ 21 - 30	13561K - 13570K
BSJ 37 - 42		13577K - 13582K	
BSJ 49		13827M	
BSJ 51 - 52		13829M - 13830M	
BSJ 79 - 82		13857M - 13860M	
BSJ 97 - 102		13875M - 13880M	
BSJ 133		14989D	
BSJ 138 - 139		14994D - 14995D	

LOCATION:

24 miles East South East of
Tulsequah, B. C.

Atlin Mining Division
58°, 132°, NW

OWNER:

L. G. White, P. Eng.

DATES:

August 1 to September 15, 1970

September 25, 1970

Vancouver, B. C.

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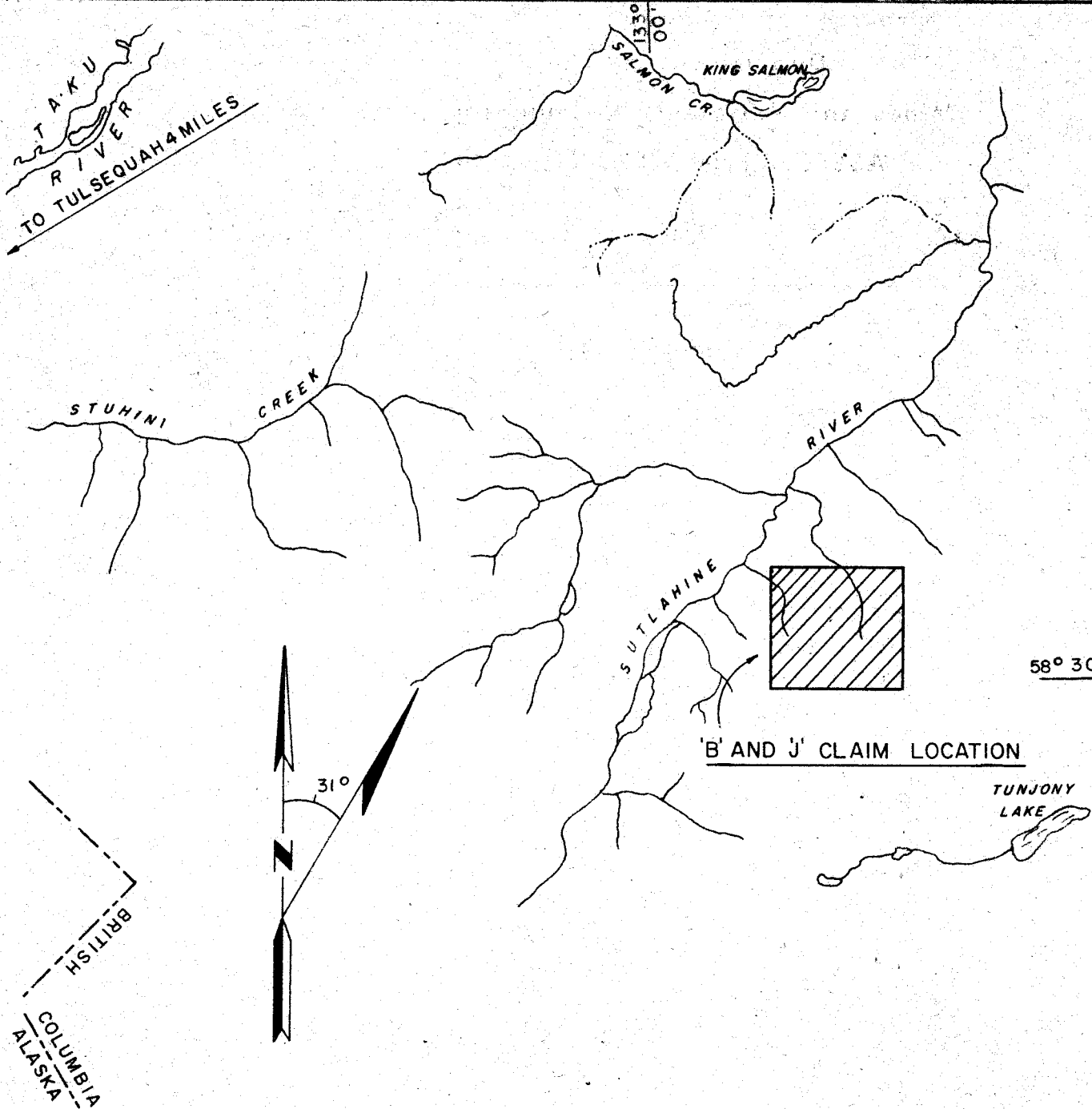
SUMMARY AND CONCLUSIONS:

A total of 18 line miles of magnetometer surveying was completed on the "B" and "J" claim groups during August of 1970. Approximately two-thirds of the area covered by the survey is glaciated, the remainder is overlain by a shallow layer of talus and slide material.

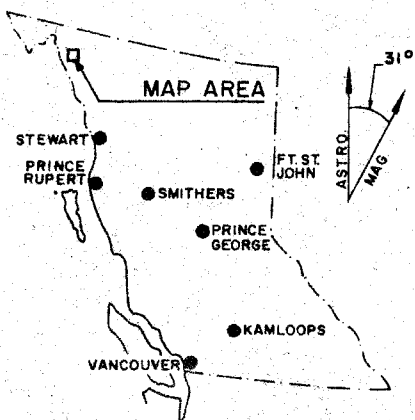
The magnetometer survey was carried out in order to trace the geological structure in this unexposed area and correlate the magnetic response with known sulphide mineralization.

The survey indicated the major rock units as well as the smaller dyke features occurring on the claim groups. The intrusive and volcanic rocks were delineated and the contacts extended where geological information was not obtainable. Smaller, mineralized dykes and shear zones were observed due to the concentration of magnetite in these areas.

There appears to be a positive correlation between the sulphide mineralization and the dykes and shear zones. Two of these zones are known to contain chalcopyrite as well as magnetite; the other two zones are covered by ice and therefore have not been prospected. The delineation of volcanic and intrusive rock was obtained as a result of the survey. The phase changes in the intrusive itself involved too small a susceptibility change to allow accurate interpretation.



TO ACCOMPANY GEOPHYSICAL REPORT BY L.C. WHITE, P.Eng. ON THE 'B' AND 'J' CLAIM GROUPS, TULSEQUAH AREA, ATLIN MINING DIVISION B.C. DATED SEP. 15, 1970



BRITISH COLUMBIA

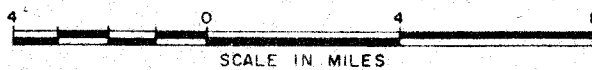
TAKU SYNDICATE

LOCATION MAP

OF

'B' AND 'J' CLAIM GROUP

ATLIN M. D., BRITISH COLUMBIA



W. G. S.

SEPTEMBER 1970

2.

INTRODUCTION:

During the period August 1 to August 29, 1970 a ground magnetometer survey was completed on a grid established on the "B" and "J" claim groups located fourteen miles south of King Salmon Lake which is situated in the Atlin Mining Division approximately twenty-four miles East South East of Tulsequah, B. C.

The claims were staked during August 1969 by crews employed by the Taku Syndicate, a joint venture exploration group financed by United States Smelting, Refining and Mining Company, Home Oil Company Limited, Minorex Limited, Transcontinental Resources Limited, and New Taku Mines Limited.

Geochemical results of silt sampling and subsequent geological prospecting indicated mineralized areas of copper on the western and southern edges of the glacier. The purpose of the magnetometer survey was to determine if these areas extended under the glacier and also to try to delineate the various rock units and structural features (see Geology) occurring in the area and relate them, if possible, to the mineralization.

The field survey and subsequent interpretation was carried out by D. J. Misener, B.A.Sc., a Geophysicist employed by Western Geological Services Limited. Overall direction was provided by L.G. White, P. Eng., the General Manager and Consultant for the Taku Syndicate.

CLAIMS:

The survey area consists of two claim groups; Group "B" and Group "J" (marked "B" and "J" respectively on Figure 2). The claim groups, claim names and record numbers are given below:

<u>Claim Group</u>	<u>Claim Name</u>	<u>Record Number</u>
Group "B"	BSJ 1 - 8	13541K - 13548K
	BSJ 17 - 20	13557K - 13560K
	BSJ 31 - 32	13571K - 13572K
	BSJ 34 - 36	13574K - 13576K
	BSJ 43 - 48	13583K - 13588K
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	BSJ 125	13903M
	BSJ 127	13905M
	Group "J"	BSJ 9 - 16
BSJ 21 - 30		13561K - 13570K
BSJ 37 - 42		13577K - 13582K
BSJ 49		13827M
BSJ 51 - 52		13829M - 13830M
BSJ 79 - 82		13857M - 13860M
BSJ 97 - 102		13875M - 13880M
BSJ 133		14989D
BSJ 138 - 139		14994D - 14995D

The claims were staked in the month of August 1969 and were recorded in Atlin on August 29, 1969. All claims were staked as agent for L. G. White.

LOCATION AND ACCESS:

The Property is located approximately twenty-four miles east-south-east of Tulsequah, B. C. and approximately fourteen miles south of King Salmon Lake. Access is from Juneau, Alaska, via float plane to King Salmon Lake, thence by helicopter south to the property. Air transport proved to be the only reasonable access as no roads or trails are present in the area. Approximately 50% of the area covered by the claim groups is covered by ice; the remaining ground is mountainous. The relief over the claim groups is over 3,000 feet, elevations range from 3,000 feet to 7,240 feet across the claim groups.

GEOLOGY:

The area of the claims covered by the magnetometer survey is underlain largely by coast intrusive rocks of Cretaceous or Early Tertiary Age. The intrusive is quartz monzonite with a fine grained or porphyritic phase distinguishable from a medium grained phase. Throughout both phases, dykes of andesite or porphyritic basalt occur along with lighter coloured aplitic dykes. Both types of dykes strike approximately north-east and dip vertically. Major faulting and related jointing, in the quartz monzonite also follow this local north-east trend.

The north-western portion of the claim group is covered by altered volcanic rocks of the Stuhini Group (see Open File material "Tulsequah Map Area, British Columbia 104 K" by Souther). In the north-western area, a dioritic intrusive phase occurs between the quartz monzonite and the volcanics. Both the diorite and volcanics are altered along

the contact, while the contact between the quartz monzonite and the diorite appears much sharper with little or no alteration zone.

Mineralization on the claim group consists of magnetite, chalcopyrite, pyrite and minor amounts of pyrrhotite and molybdenite. In the volcanics, epidote, magnetite and minor pyrrhotite occur in the area adjacent to the contact with the intrusive. Chalcopyrite and molybdenite are usually found in or associated with small shears or fractures in the quartz monzonite and some of the aplite dykes; the magnetite is associated with these features as well as with the andesitic and basaltic dykes.

PURPOSE OF THE MAGNETOMETER SURVEY:

The purpose of the magnetometer survey was to determine the extent of the various rock units and trace the smaller mineralized zones where they were covered by overburden or ice and correlate them with the exposed areas. On the "B" and "J" claims covered by the survey, the change in magnetic susceptibility between rock units was large enough to allow an accurate determination of the contacts. Four of the smaller dykes and shear zones were located as a result of the survey and are described in the "Discussion of Results".

METHOD:

A McPhar, model M-700, vertical field fluxgate magnetometer was used for the survey. The earth's vertical magnetic field component was noted at the Tatsamenie Base Camp (about 20 miles south-east of the claim groups) as being

49,200 gammas. The latitude adjustment was made at this location and all readings are relative to this station.

The base line for the grid was chained in at a bearing of north-south (true). Grid lines were run east-west (true) at intervals of 200 feet from line 00 to line 94 S and readings were taken at 100 foot intervals along these lines. Four readings at each station on the base line were recorded the first day of the survey and these readings were corrected at a Control Point marked C.P. on Figure 2. The standard method of "looping" or re-occupying stations was employed to remove the diurnal variation. Periodic checks (no more than 2 hour separation) were made at base line readings and thus readings could be correlated with the Control Point. The largest diurnal variation noted was 80 gammas and the maximum variation during closure periods (maximum 2 hours) was 50 gammas. All readings shown on Figure 2 have been corrected for diurnal variation. The plotted data may be assumed accurate to ± 15 gammas, relative to the Control Point.

DISCUSSION OF RESULTS:

Figure 2, at a scale of 1" = 250', illustrates the corrected geophysical data in contoured form. The prominent contour interval is 100 gammas; however, in relatively "quiet" areas the 20 gamma contour has been used to aid interpretation. Over the area covered by the magnetometer grid, three main features dominate the magnetic relief. The features are described briefly below and consist of the following:

- 1) An attenuation of high frequency features and a flatter magnetic profile south of L 40 S. This is largely a topographic effect of the glacier.

- 2) Changes in magnetic relief due to changes in the overall rock types (i.e. between the volcanics and quartz monzonites).
- 3) Smaller scale features consisting of magnetic highs surrounded or bordered by magnetic depressions. These features are due to dykes and fracture zones which have become mineralized and contain magnetite in association with chalcopyrite.

Feature I:

The magnetic relief over the ice-covered area (see Figure 2) is flatter, on the average, than the relief over the area not covered by the glacier. At the conclusion of the magnetometer survey, the approximate thickness of the glacier was estimated using the difference between altimeter readings and the extrapolation of topographic contours under the glacier. The thickest area is in the vicinity of lines 64 S - 66 S; the depth is estimated to be approximately 250 - 300'. The average depth over the area surveyed is 250 - 300'. Attenuation of potential fields (in this case the magnetic field) follows an inverse cube law with distance and thus the 100 ft. depth effectively masks most small magnetic variations (in the order of a few hundred gammas) within the underlying rock.

Feature II:

The most striking difference in magnetic susceptibility occurs on the northwestern portion of the grid on a line running from approximately L00, 1E to L14S, 4W. To the west lie the volcanics and to the east a thin band of intrus-

ive diorite. The eastern edge of the diorite lies along a line running from L00; 3E to L24S 2W. To the east and south of this line is the area of quartz monzonite, which occupies the rest of the grid area.

Between L00 and L12S, the contact is with the fine grained quartz monzonite phase. From L12S south to L24S, the contact is between the diorite and a medium to coarse grained quartz monzonite. Both monzonite phases cause an increase in magnetic relief of approximately 600 gammas (relative to the diorite). This increase occurs over approximately 200 feet between the fine grained phase and the diorite, while the increase occurs over approximately 500 feet between the medium grained phase and the diorite. In the area covered by the monzonite, the contact between the medium and fine grained phases is difficult to determine accurately. Two reasons for the difficulty in locating this contact are:

- a) The contact is irregular and gradational with a low susceptibility difference between phases.
- b) The area is covered with talus and slide material, producing high frequency effects which obscure the less intense, larger scale, change due to the phase difference.

Feature III:

Within the quartz monzonite, the magnetic survey has outlined four areas containing mineralized (magnetic) dykes or fracture zones. They are all relative magnetic highs and are located as follows: (see Figure 2)

- a) A zone extending from 40S, 14W east to L40S, 12W, south to L16S, 12W and north to L13S, 12W.
- b) A zone extending from L66S, 20W east to L66S, 17W and northeast to L64S, 16W.
- c) A zone extending from L86S, 5W to L86S, 1W and north to L84S, 5W extending from 5W to 1W.
- d) A zone bounded by L92S, 33E to 39E, and L88S, 38E to 40E.

Two of these areas (a and c) have chalcopyrite in association with the magnetite along small shears and fractures near the aplitic dykes. Areas b and d are covered by the glacier. In both cases, however, the geology just off the edge of the glacier indicates the presence of aplitic dykes and thus these features are probably similar to a and c.


Leonard G. White

Sept. 25/70

September 25, 1970

APPENDIX "A"STATEMENT OF COSTS OF MAGNETOMETER SURVEY


Salaries (as per Appendix "B")	\$1,685.00
Groceries	420.00
Camp Supplies and Equipment	100.00
Helicopter - 10 hours @ \$125.00/hour	1,250.00
Drafting and Report Writing	200.00
Field Supervision:	
- J. Buchholz - 2 days @ \$100/day	200.00
- N. Von Fersen - 11 days @ \$ 75/day	825.00
Consulting Engineering:	
- L. G. White, P. Eng. 2 days @ \$150/day	300.00
Overhead @ 0.2 of \$1,685.00 + \$420.00 (Salaries & Groceries)	421.00
TOTAL	<u><u>\$5,401.00</u></u>

Apportionment of Costs:

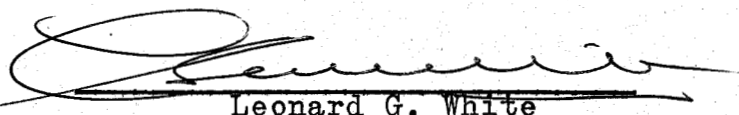
	<u>Group "B"</u>	<u>Group "J"</u>	
<u>Actual Cost</u> Grid Preparation	\$1,547.50	\$1,547.50	
Magnetometer Survey	1,003.00	1,003.00	
Consulting, Engineering	150.00	150.00	
	<u>2,700.50</u>	<u>2,700.50</u>	<u>\$5,401.00</u>
<u>Amount Claimed</u>	<u>\$2,200.00</u>	<u>\$2,200.00</u>	<u>\$4,400.00</u>

I, L. G. White, hereby declare that the information contained in the above schedule is true to the best of my information, knowledge and belief and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act".

DECLARED before me at the City of Vancouver in the Province of British Columbia, this 25th day of September, A.D. 1970.



A Commissioner for taking Affidavits
for British Columbia

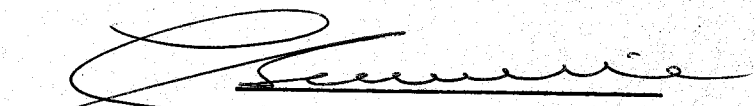

Leonard G. White

APPENDIX "B"

<u>Name</u>	<u>Category</u>	<u>Rate</u>	<u>Days Worked</u>	<u>Period</u>	<u>Total</u>
D. J. Misener	Geophysicist	\$ 40/day	26	8/4 - 8/29	\$1,040.00
D. Stanley-Jones	Helper	\$ 22/day	15	8/7 - 8/15	330.00
D. Amor	Helper	\$ 21/day	15	8/1 - 8/15	315.00
					<u>\$1,685.00</u>
N. von Fersen	Geologist Field				
	Supervision	\$ 75/day	11	8/1 - 8/11	825.00
J. Buchholz	Geologist Field				
	Supervision	\$100/day	2	8/23 - 8/11	200.00
L. G. White	P. Eng. Consultant	\$150/day	22	8/28 - 8/29	300.00

I, L. G. White, hereby declare that the information contained in the above schedule is true to the best of my information, knowledge and belief and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act".

DECLARED before me at the City)
of Vancouver in the Province of)
British Columbia, this 25th day)
of September, A. D. 1970)


Leonard G. White

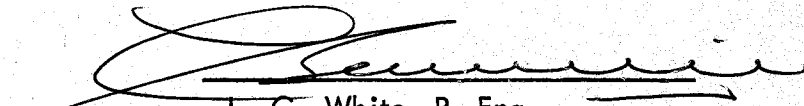


A Commissioner for taking Affidavits
for British Columbia

CERTIFICATION

I, Leonard George White, of the City of West Vancouver, in the Province of British Columbia, hereby certify as follows:

1. That I am a Registered Professional Engineer of the Provinces of British Columbia and Ontario and reside at 704 Parkside Road, West Vancouver, B. C.
2. That I am a graduate of Washington State University with a Bachelor of Science in Mining Engineering, having practised my profession for twenty-seven years.
3. That I have a 2% carried non-assessable interest in the "B" and "J" claim group as a result of my arrangement with the financing group comprising the Taku Syndicate.
4. That I did complete a field examination and study of the "B" and "J" claim group during the period August 15 and 17, 1970, to determine the reliability and interpretation of a magnetometer survey completed by D. James Misener, Geophysicist, employed by the Taku Syndicate, of which I am General Manager and Consultant.


L. G. White, P. Eng. *Sept. 25/70*

Vancouver, B. C.
September 25, 1970

