

GEOLOGICAL AND GEOCHEMICAL REPORT

BOB MINERAL CLAIM GROUP

(Bob 1-4)

Mayo Mining District  
Yukon Territory

N.T.S. 105-N-9

Longitude 132° 25' W.  
Latitude 63° 35' N.

Work done during period  
June 9 - Sept. 26, 1968

By

M. E. (TIM) COATES

ATLAS EXPLORATIONS LIMITED

October 21, 1968

LIST OF CLAIMS

Claim Numbers

Grant Numbers

Date Recorded

Bob 1-4

Y14204 - Y14207

Nov. 3, 1967

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# ATLAS EXPLORATIONS LIMITED

(N. P. L.)

330 MARINE BUILDING

355 BURRARD STREET

VANCOUVER 1, B.C.

## GEOLOGICAL AND GEOCHEMICAL REPORT

### BOB MINERAL CLAIM GROUP

(Bob 1-4)

#### INTRODUCTION

The Bob Group of mineral claims was staked in October, 1967. Three large gossans, spotted during aerial reconnaissance of the area, yielded high zinc values. Four claims were staked to cover the area immediately surrounding the gossans. Ground follow-up in 1967 consisted mainly of geochemical sampling of the gossans and several contour soil-sample traverses along the hillside.

In the 1968 season it was decided that additional work should be done in the general vicinity to more accurately define the size and location of the anomalous source. Stream sediment sampling was done on all the nearby drainages and the area was mapped geologically.

Late in the 1968 season it was decided the four existing claims would be dropped. Staking of alternative sites will depend on the results of research into the rock geochemistry of the area.

#### LOCATION AND ACCESS

The Bob Group is located in N.T.S. area 105-N-9 at approximately 63°35' North latitude and 132°25' West longitude. Ross River, Y.T., the nearest settlement, is about 110 miles south. Mayo Landing, Y.T. is about 110 miles west of the claims.

Access to the property is by float-equipped aircraft to Swan Lake, 14 miles to the west. Helicopter support is required from this point. The claimed area is forest covered but it is possible to land either above the group - on a ridge - or below it - in the creek bottom.

#### TOPOGRAPHY AND GROUND CONDITIONS

The terrain in the vicinity of the Bob Group is mountainous, local relief being in excess of 3000 ft. The elevation of the central parts of the group is approximately 4000 ft.; mountains to the north and south peak at 5500 ft. or higher.

The property is heavily wooded with a stunted growth of black spruce, dwarf birch and mountain alter. The claimed area is on a south-facing slope and is well drained.

#### REGIONAL GEOLOGICAL SETTING

The Bob Group lies several miles to the west of a major northeast-trending fault zone, a trench-like topographic feature occupied by the Rogue River. Faults of this trend, conjugate to faults of the northwesterly "Tintina" trend, have effected a gridded array of depressions in the region.

The area is underlain by moderately folded, slightly metamorphosed, eugeosynclinal-type rocks of Ordovician-Devonian (?) age. The dominant rock-type in the vicinity of the claim group is black carbonaceous chert and argillite. Lesser amounts of black slates, grey-green argillite, chert-pebble conglomerate and some clean buff to grey quartzite are also present.

Structurally, the property appears to be located on the truncated north-dipping limb of a flat-plunging westerly trending anticlinal structure. Shallow to moderate dips characterize the area to the north.

The Bob Group is located approximately 10 miles south of the east-west trending axis of a train of granodiorite intrusives. Another belt of intrusions - average composition quartz-monzonite - with a northwest trend, occurs about 30 miles southwest.

TABLE OF FORMATIONS

Cretaceous	12	Mafic dikes
	11a	Granodiorite
	11b	Quartz, monzonite
Ordovician-Devonian	3d	Chert pebble conglomerate
	3c	Grey-green argillite and slate
	3a	Carbonaceous chert, carbonaceous argillite and black slate.

GEOLOGY OF THE CLAIM GROUP AREA

The property is underlain entirely by black slate and chert pebble conglomerate. The gossan areas are underlain by chert-pebble conglomerate. Pyrite, in small amounts, was the only sulphide recognized in the rocks.

The sediments beneath the claims strike at approximately  $120^{\circ}$  -  $130^{\circ}$  and dip to the north at  $40^{\circ}$  -  $45^{\circ}$ .

A few, very narrow, mafic dikes occur in the area. These fine-grained dikes are green on weathered surfaces and contain scattered, medium-grained feldspar crystals.

The geology of the area to the north and east was mapped in the 1968 season at a scale of 2640 ft. in conjunction with geochemical sampling of the drainages.

### GEOLOGICAL INTERPRETATIONS

Until more detailed mapping has been done, it will not be possible to accurately describe the structure of the area. Outcrop patterns however suggest cross-folding and local doming. Although there is no direct evidence of plutonic igneous activity in the immediate area, the possibility of the existence of a blind pluton is still entertained for two reasons:

- (1) Rust seepages and gossans found in the vicinity are characteristic of the aureoles of other plutons in the region.
- (2) Doming and flatly-dipping rocks suggest the possibility of intrusion at depth.

The small mafic (diabase-type?) dikes are tentatively regarded as being younger than the plutonic igneous activity.

### GEOCHEMISTRY

On all drainages surveyed, samples of stream sediments were collected at approximately 1000 ft. intervals. This work was successful in locating several anomalous source areas:

- (1) The Bob Group area has proven to be larger than previously expected. The source area for the anomalous values (200 ppm - 7200 ppm) is roughly oval in shape (2 miles by 3 miles). See Appendix V.
- (2) A stream two miles northeast of the Bob Group yielded anomalous copper values (55 ppm - 175 ppm).
- (3) In Tertiary drainages two to four miles to the east of the Bob Group, stream-sediments carry anomalous Cu concentrations (50 ppm to 460 ppm) with coincident high Zn values (200 ppm to 1870 ppm). Stream silts in the vicinity are usually somewhat rusty.

- (4) High lead values (50 ppm to 260 ppm) are found six or seven miles to the east of the claims. These values, in all cases, have coincident anomalous Zn concentrations associated with them. (These anomalous Pb values were discovered in the process of contour soil sampling late in the 1967 field season).

Note: Histograms for Cu and Zn concentrations over large areas with similar lithology are shown in Appendix VI. These frequency distributions have been used as a reference standard in setting threshold values for treatment of geochemical data presented in this report.

#### GEOCHEMICAL INTERPRETATIONS

In the vicinity of the geochemical anomalies discovered this season, it was not possible to find any visible mineralization to substantiate the results. At present several possibilities are entertained which may ultimately explain the anomalies:

- (1) The anomalies may be a consequence of a high primary concentration of base-metal ions in the argillaceous host rocks.
- (2) The mineralization may be secondary and concentrated in quartz-calcite veinlets; a condition encountered at other localities in the Yukon. (No mineralization of this type has been encountered here to date).
- (3) High zinc values may be attributable to some fixing agency in the eroded sediments themselves (e.g. eroded, limy beds or beds with numerous quartz-calcite veinlets, which elevate the pH of percolating solutions, become base-metal collectors).

- (4) Much of the bedrock in the area is graphitic; at present it is not known what effects abnormal carbon concentration has on base-metal ion fixation.
- (5) The anomalies may actually be a response of oxidation of base-metal sulphide orebodies without surface expression.

To extend our knowledge of the geochemical environment in the Bob Group area, a suite of specimens has been collected for rock-geochemical study (See Appendix V). It is hoped that this work will yield additional parameters which will be of value in assessing the merit of the respective targets.

#### SUMMARY AND RECOMMENDATIONS

A comprehensive silt sampling coverage and area mapping program has been concluded. In the several anomalous areas, further detailed work, geological and geochemical, should be done. Results from research into the area-geochemistry must be taken into account before concrete plans are made for additional work.

Respectfully submitted,

M. E. (Tim) Coates

October, 1968.

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SUMMARY OF COSTS
  
GEOLOGICAL AND GEOCHEMICAL SURVEYS
  
BOB MINERAL CLAIM GROUP
  
(Bob 1 - 4)

1.	(a)	Geological Mapping	:	35 sq. miles	
	(b)	Silt Samples Taken	:	343	
	(c)	Mapping Geologists	:	M. E. Coates	
				T. Adamson	
				G. Sanford	
	(d)	Geochemical samplers	:	P. Claridge	
				P. Dean	
				J. Ladue	
				M. Ladue	
				P. Ladue	
				F. Charlie	
				T. Charlie	
2.	(a)	Wages:			
		2 man days @\$30.00, daily			
		wage of M. E. Coates		\$ 60.00	
		1 man day @\$23.00, daily			
		wage of T. Adamson		\$ 23.00	
		15 man days @\$18.33, daily			
		wage of G. Sanford		\$275.00	
		15 man days @\$16.50, daily			
		wage of P. Claridge		\$250.00	
		2 man days @\$20.00, daily			
		wage of P. Dean		\$ 40.00	
		1 man day @\$20.00, daily			
		wage of J. Ladue		\$ 20.00	
		1 man day @\$20.00, daily			
		wage of M. Ladue		\$ 20.00	
		1 man day @\$20.00, daily			
		wage of P. Ladue		\$ 20.00	
		2 man days @\$20.00, daily			
		Wage of F. Charlie		\$ 40.00	
		2 man days @\$20.00, daily			
		wage of T. Charlie		<u>\$ 40.00</u>	\$ 788.00

(b)	Helicopter support:		
	13.9 hrs. @\$127.00/hr.	1,765.30	
	Aviation gasoline -200 gals.		
	@\$2.00/gal.	<u>468.00</u>	\$2,233.30
(c)	Subsistence Cost:		
	42 man days @\$10.00/man day		\$ 420.00
(d)	Analysis Cost:		
	343 geochemical samples		
	@\$2.50/sample processing		
	cost		\$ 857.50
(e)	Supervision Cost:		
	42 man days @\$2.00/man day		\$ 84.00
(f)	Interpretation & Report Presentation:		
	Drafting:		
	2 man days @\$19.00, daily		
	wage of P. Vlasveld	\$38.00	
	Interpretation & Report		
	Writing:		
	3 man days @\$30.00, daily		
	wage of M. E. Coates	\$90.00	
	Subsistence Cost:		
	4 man days @\$10.00/man day	\$40.00	
	Supervision Cost:		
	4 man days @\$2.00/man day	<u>\$ 8.00</u>	\$ 176.00
(g)	Overhead - 15% of total		\$ 683.82
	15% of \$4,558.80		
TOTAL COST OF BOB GROUP GEOLOGICAL AND GEOCHEMICAL SURVEY			<u>\$5,242.62</u>

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LIST OF PERSONNEL  
BOB GROUP GEOLOGICAL AND GEOCHEMICAL SURVEYS

M. E. Coates	Project Chief (Geologist)	Vancouver, B.C.
T. Adamson	Party Chief (Geologist)	Vancouver, B.C.
G. Sanford	Geological Asst. (Student)	Vancouver, B.C.
P. Claridge	Geological Asst. (Student)	Vancouver, B.C.
P. Dean	Prospector	Vancouver, B.C.
J. Ladue	Geochem Sampler	Ross River, Y.T.
M. Ladue	Geochem Sampler	Ross River, Y.T.
P. Ladue	Geochem Sampler	Ross River, Y.T.
F. Charlie	Geochem Sampler	Ross River, Y.T.
T. Charlie	Geochem Sampler	Ross River, Y.T.

ROGUE RIVER



105-N-9

5000

5000

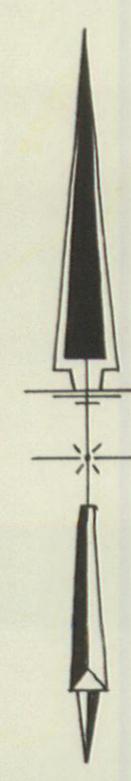
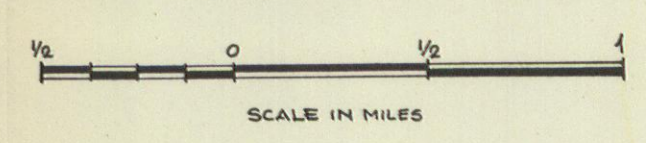
5000

3000

3000

5000

ATLAS EXPLORATIONS LIMITED  
ROSS RIVER (Y.T.)  
GEOCHEMICAL RESULTS AND CLAIM GROUP  
MAP OF SHEET 105-N-9



ROGUE RIVER

ROGUE

ROGUE RIVER

ROGUE

2500

3500

MOUNT AHO  
6866

BOB GP

5000

5000

4000

4500

5000

3000

ROGUE

CREEK

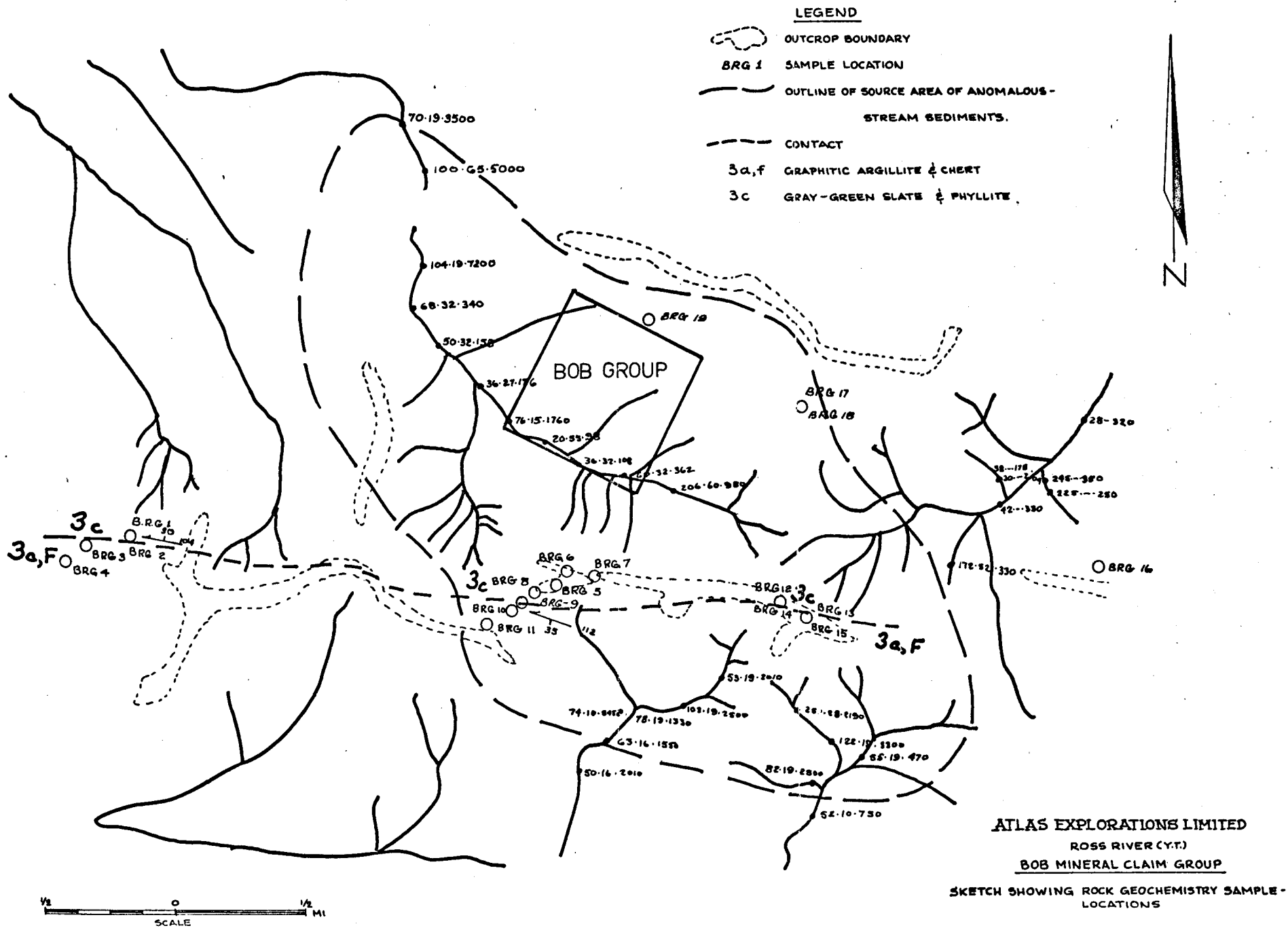
105-N-9

63°45'

63°45'

122°30'

122°30'



ROCK GEOCHEMISTRY SAMPLING DATA  
BOB GROUP

The following information regards samples collected by Tim Coates and Tom Adamson during the course of field work at the Bob Group, September 26, 1968. Locations are indicated on the accompanying sketch.

- BRG-1 Green-grey, calcareous argillite, small quartz veins, orange-brown weathered surface.
- BRG-2 Grey-green slaty argillite; not calcareous.
- BRG 3 Grey chert
- BRG-4 Grey-black chert and minor graphitic argillite
- BRG-5 Grey-black chert
- BRG-6 Slaty grey argillite
- BRG-7 Slaty grey argillite
- BRG-8 Grey slate
- BRG-9 Grey slate
- BRG-10 Black chert, cherty carbonaceous argillite with quartz-carbonate veinlets
- BRG-11 Pitted grey-black chert; minor argillite
- BRG-12 Grey slate
- BRG-13 Grey slate
- BRG-14 Black chert, cherty graphitic argillite
- BRG-15 Light grey chert
- BRG-16 Light grey to medium grey chert (low carbon content)
- BRG-17 Medium-grained carbonaceous quartzite; networks of quartz-carbonate veinlets
- BRG-18 Very fine grained mafic dike; dark green
- BRG-19 Chert-pebble conglomerate
- BRG-20 Graphitic slate

In most cases, duplicate specimens have been collected for reference purposes.