```
Off Confidential: 89.06.16
bistrict Geologist, Smithers
                                  MINING DIVISION: Atlin
ASSESSMENT REPORT 17492
               Yellowjacket North
-PROPERTY:
                                           133 33 34
                      59 36 08
                                    LONG
               LAT
LOCATION:
                      08 6607787 581312
               UTM
                      104N12E
               NTS
               Arent 1, Top 1-2, Wind 1, Gin, Tonic, YJ 7, YJ 17 Fr.
CLAIM(S):
OPERATOR(S):
AUTHOR(S):
REPORT YEAR:
               Homestake Min. Dev.
               McIvor, D.F.
               1988, 18 Pages
GEOLOGICAL
                 The claims are underlain by Permo-Pennsylvanian Cache Creek Group
SUMMARY:
           andesitic volcanics and Permian mafic and ultramafic intrusives. No
           significant alteration or mineralization is evident.
WORK
pone:
           Geological, Geophysical
                    25.6 km;VLF
           EMGR
               Map(s) - 3; Scale(s) - 1:5000
                  250.0 ha
           GEOL
Map(s) - 2; Scale(s) - 1:2000
                    34.6 km
           LINE
                    25.6 km
           MAGG
               Map(s) - 5; Scale(s) - 1:5000
X 17 sample(s) ;ME
            ROCK
                104N 043
MINFILE:
U
```

IJ

ך ``

(

ł

	the second s
LOG NO: 0627	RD.
ACTION:	
FILE NO:	

SUMMARY REPORT; GEOLOGICAL MAPPING, LITHOGEOCHEMICAL SAMPLING AND GEOPHYSICAL SURVEY PROGRAMS ON THE YELLOWJACKET NORTH PROPERTY, NORTH AND SOUTH CLAIM GROUPS,

ATLIN MINING DIVISION, BRITISH COLUMBIA

FILMED

GEOLOGICAL BRANCH ASSESSMENT REPORT



NTS: 104N.12E

Π

[]

 $\left[\right]$

l

LATITUDE: 59° 36' NORTH

LONGITUDE: 133°33' WEST

OWNER: HOMESTAKE MINERAL DEVELOPMENT COMPANY LTD.

OPERATOR: HOMESTAKE MINERAL DEVELOPMENT COMPANY LTD.

BY: DUNCAN MCIVOR

DATE: JANUARY 1988

TABLE OF CONTENTS

•

۱

PAGE

1.	SUMM	ARY		1
2.	INTR 2.1 2.2 2.3 2.4 2.5 2.6 2.7	DDUCTION SCOPE OF R LOCATION, CLAIM STAT GENERAL GE PRELIMINAR EXPLORATIO WORK COMPL	EPORT ACCESS, AND PHYSIOGRAPHY US OLOGIC SETTING Y ECONOMIC ASSESSMENT N HISTORY ETED	1 1 2 2 2 3 3
3.	DETA 3.1	ILED TECHNI GEOLOGIC M 3.1.1. 3.1.2.	CAL DATA APPING METHODS EMPLOYED RESULTS AND INTERPRETATION	3 3 3 4
	3.2	LITHOGEOCH 3.2.1. 3.2.2.	IEMICAL SAMPLING METHODS EMPLOYED RESULTS AND INTERPRETATION	5 5 6
	3.3	GEOPHYSICA 3.3.1. 3.3.2.	AL SURVEYS METHODS EMPLOYED RESULTS AND INTERPRETATION 1) TOTAL FIELD MAGNETICS 11) VERTICAL GRADIENT MAGNETICS 111) VLF-EM	6 6 7 7 7 7 7
4.	ITEM	NIZED COST S	STATEMENT AND ALLOCATION OF EXPENDITURES	9

SELECTED BIBLIOGRAPHY

[[

AUTHOR'S QUALIFICATIONS

LIST OF FIGURES

1. LOCATION MAP, ATLIN AREA

 \Box

- 2. LOCATION MAP, YELLOWJACKET NORTH PROPERTY
- 3. GENERAL GEOLOGY OF THE ATLIN AREA

LIST OF APPENDICES

- 1. 1:2000 GEOLOGY MAP, YELLOWJACKET NORTH PROPERTY (NORTH AND SOUTH SHEETS)
- 3. ICP GEOCHEMICAL DATA
- 4. GEOPHYSICAL SURVEY RESULTS
 - 1:5000 GROUND MAGNETOMETER SURVEY, TOTAL FIELD DATA
 - 1:5000 GROUND MAGNETOMETER SURVEY, TOTAL FIELD CONTOUR PLAN
 - 1:5000 GROUND MAGNETOMETER SURVEY, VERTICAL GRADIENT DATA
 - 1:5000 GROUND MAGNETOMETER SURVEY, VERTICAL GRADIENT CONTOUR PLAN
 - 1:5000 VLF-EM SURVEY, LINE PROFILE PLOTS
 - 1:5000 VLF-EM SURVEY, FRASER FILTER DATA
 - 1:5000 VLF--EM SURVEY, FRASER FILTER CONTOUR PLAN
 - 1:2000 GROUND MAGNETOMETER SURVEY, TOTAL FIELD CONTOUR PLAN (EASTERN EXTENSION)

1. SUMMARY

 \Box

Π

The Yellowjacket North property is located 9 kilometers northeast of the town of Atlin, in northwestern British Columbia.

. 1

During the 1987 field season, Homestake Mineral Development Company Ltd. completed geological mapping, lithogeochemical sampling, and geophysical (magnetic, VLF-EM) surveys on the property.

While exposure was poor, the mapping did indicate that the majority of the property was underlain by serpentinized ultramafic intrusive rocks in contact with andesitic volcanics in the north and west-central portions of the property. No outcropping exposures of hydrothermally altered (silica-carbonate-mariposite) ultramafic rocks were encountered during mapping, no did any samples collected from the property return any significantly anomalous gold or associated trace-element values.

The results of the geophysical surveys on the property, particularly the total field and vertical gradient magnetic surveys, aided in delineating contacts between the ultramafic intrusives and andesitic volcanics. Several east-west trending linear lows were also delineated in areas thought to be underlain by ultramafic intrusive rocks, and these features may represent structurally related zones of hydrothermal alteration (to a silica-carbonate-mariposite assemblage) that warrant drill testing.

2. INTRODUCTION

2.1 Scope of Report

This report serves to summarize all exploration activity completed by Homestake Mineral Development Company Ltd. on the Yellowjacket North Property during the period January through October 1987.

The Yellowjacket North property covers all or portions of the following claims:

ARENT 1	(2090)
ARENT 2	(2076)
TOP 1	(2480)
TOP 2	(2481)
GIN	(2468)
WIND 1	(2472)
TONIC	(2469)
¥J 7	(2678)
YJ 17 FR	(2685)

2.2 Location, Access and Physiography

The Yellowjacket North Property is located 9 kilometers northeast of the town of Atlin, in northwestern British Columbia (see Figures 1 and 2).

Access to the property is good, with the all weather Surprise Lake or Discovery Road crossing the southern boundary of the property. The northern portion of the property is accessible only by foot or helicopter. Relief on the





÷

property is moderate by local standards, the land rising 120 meters from the southern to northern boundary of the property, at the base of Mt. Munro.

Outcrop exposure constitutes less than 1% of the property, the remainder being covered by a thick mantle of glacial sediments. The majority of exposure is in the extreme southern portion of the property, along the Pine Creek Valley. Two lakes exist on the property, neither very large, which are surroundered by extensive areas of spruce swamp. This poorly drained area covers most of the central part of the property, in a northeast-southwest trending belt.

2.3 Claim Status

1

The claims that collectively form the Yellowjacket North property of part of a larger grouping of claims known as the "North Group", all of which are currently in good standing.

2.4 General Geologic Setting

The Yellowjacket North Property lies near the western edge of the northwest trending "Atlin Terrane", which is underlain by Upper Paleozoic oceanic crustal rocks (Monger, 1975). These rocks are correlated with the Cache Creek Group rocks of southern and central British Columbia.

Within the Atlin Terrane, andesitic to basaltic flows are overlain by cherts and thick shallow water carbonate rocks. Discordant granitic plutons, ranging in age from Late Jurassic to early Tertiary, locally intrude the stratigraphy. Some remnant Tertiary volcanics and sediments are found within the area.

Also within the Atlin Terrane, and co-eval or immediately post dating the Cache Creek group rocks, are large ultramafic bodies which define a discordant belt trending west across the tectonic fabric of the terrane. The ultramafic bodies are commonly intensely serpentinized, and in places extensively hydrothermally altered to a silica-carbonate-mariposite-fuchsite assemblage similar to listwanite.

The Yellowjacket North property is underlain almost exclusively by ultramafic rocks, with a major contact with Cache Creek Group rocks (both andesites and limestones) crossing the extreme northern portion of the property. Figure 3, illustrates the general geology of the Atlin area, and the location of the Yellowjacket North property within that geologic setting.

2.5 Preliminary Economic Assessment

The majority of known lode gold mineralization within the Atlin Camp is associated with intensely altered (silica-carbonate-mariposite/fuchsite) ultramafic rocks proximal to their fault bounded or intrusive contacts with rocks of the Cache Creek Group.

The mineralization is almost exclusively hosted in quartz quartz-carbonate veins and vein stockworks within these altered packages of rocks, occurring either as often spectacular free gold, or in intimate



П

57

Ł

 \Box

-

Ш

1

_	
	LEGEND CENOZOIC QUATERNARY
	PLEISTOCENE AND RECENT
,	17 GLACIAL DRIFT ; ALLUVIUM
Č	TERTIARY AND QUATERNARY
	16 OLIVINE BASALT AND SCORIA; 160 TERTIARY 166 PLEISTOCENE
/	TERTIARY (?)
4	150 QUARTZ MONZONITE 156 GRANOPHYRE 150 GABBRO AND DIORITE
/	CRETACEOUS OR TERTIARY
	4 ANDESITE, BASALT ALBITE TRACHITE, ALBITE RHYOLITE, DACITE AND RELATED PYROCLASTIC ROCKS; CONGLOMERATE, SANDSTONE
1	CRETACEOUS
2	13 ALASKITE
	JURASSIC (MAY BE IN PART OLDER OR YOUNGER)
'	12 UNDIFFERENTIATED GRANITIC ROCKS
	JURASSIC
1	H VOLCANIC GREYWACKE, SILTSTONE
•	TRIASSIC
	GREYWACKE, CHERT, ARGILLITE, CONGLOM- ERATE, TUFF, SLATE, GREENSTONE, IMPURE LIMESTONE, JASPER
~	PALEOZOIC
4	ATLIN INTRUSIONS PERIDOTITE; META-DIORITE AND META- GABBRO; SERPENTINITE; CARBONITIZED, SERPENTINITE; TALC-BEARING (STEATITIZED) UITRAMAFIC POCKS
<u>, 12</u>	ACHE CREEK GROUP 8. LIMESTONE AND LIMESTONE BRECCIA 7. GREENSTONE AND VOLCANIC GREY-
	WACKE; DERIVED AMPHIBOLITE; MINOR & AND B
111	CONGLOMERATE AND CHERT BRECCIA; GUALTZITE AND SCHIST; MINOR 7 AND 8
	UNDIFFERENTIATED, MAINLY VOLCANIC ROCKS OF UNCERTAIN, POSSIBLY SEVERAL, AGES.
· /	~, ~ FAULT (ASSUMED, ADDROXIMATE)
	AND FAULT (DEFINED) ALL FAULT (THRUST)
	GEOLOGICAL CONTACT
	HOMESTAKE
	MINERAL DEVELOPMENT COMPANY
	ATLIN PROPERTIES
, <i>r</i> i	BRITISH COLUMBIA
ţ	REGIONAL GEOLOGY
	0 20 40 60 80 100km 1:253,440
	DRAWN DATE FILE CODE
	Revised 104N/12
ð	

association with gangue sulphides such as pyrite, chalcopyrite, arsenopyrite, sphalerite, galena, and sulfosalts (pyrargyrite, tetrahedrite).

The Yellowjacket North property, in as much as it covers a major ultramafic-volcanic contact, may host areas of hydrothermal alteration along or proximal to that contact, which in turn may host potentially auriferous guartz/guartz-carbonate vein stockworks.

2.6 Exploration History

Prior to acquisition by Homestake, there has been no known previous exploration activity for lode gold deposits on the ground that constitutes the Yellowjacket North property.

2.7 Work Completed to Date

During the period January through October 1987, as part of a large exploration effort in the Atlin area, Homestake Mineral Development Company Ltd. completed the following work on the property;

- contracted 34.6 line-kilometer of cut-line grid, which were established on the property.
- completed detailed geological mapping of the property, at a scale of 1:2000
- in the course of mapping collected and analyzed 17 samples for Au and 30 additional elements.
- completed approximately 24 line-kilometers of detailed total field magnetics, vertical gradient magnetics, and VLF-EM surveys on the property.
- an additional 7 kilometers of reconnaissance total field magnetics survey over the eastern portion of the property.

The details of this work are discussed in the following section of this report.

3. DETAILED TECHNICAL DATA

- 3.1 Geological Mapping
 - 3.1.1. Methods Employed

As mentioned, 34.6 line-kilometers of grid were cut on the property, to fascilitate geological mapping and geophysical survey coverage. The grid utilized a pre-existing baseline trending at 070° across the bottom of the property, from which grid-lines were established at 100 meter intervals and extended north at 340° for an average of 2000 meters. Stations were established at 20 meter intervals along all grid lines. In the course of mapping, all encountered outcrops were physically tied into the existing grid, and their perimeters followed by hip-chain and compass. This provided very accurate establishment of outcrop locations.

Detailed notations as to outcrop lithology, structural orientation, and the presence or absence of any significant alteration, veining, and mineralization were made in the field, and transferred to a 1:2000 plan map. All pertinent topographic and geomorphic features were also accurately tied into the grid.

The geology plan map appears in Appendix 1 of this report.

3.1.2. Results and Interpretation

Lithologies

Ŀ

 \Box

Five lithologies were exposed in outcrop on the property, and below are brief descriptions of each. Note that the unit numbers coincide with those of the legend on the 1:2000 geology plan map.

Unit 2 - Serpentinized Ultramafic

This lithology, which outcrops along the extreme southern and northern edges of the property, is believed to underlie the majority of the ground. The rock is characteristically very fine grained to aphanitic, dark green to black, and moderately to intensely serpentinized, the serpentine content ranging from 30% to 100%. The rock weathers a tan to buff colour. In places, the ultramafic is porphyritic, with 2-3 mm pyroxene phenocrysts that stand out in releif on weathered surfaces. Typically the ultramafic is very strongly magnetic.

In the southeast corner of the property, the ultramafic is strongly sheared in many exposures, at locally highly variable orientations but with a general orientation of east-west, with a vertical to 70° south dip. Where sheared, talc invariably appears as an alteration product, at the expense of serpentine. Sulphides are rarely observed, and no significant alteration (silica-carbonate-mariposite) was noted outcropping on the property.

Unit 4 - Diabase - Gabbro

Numerous highly irregular pods and dykes of diabase-gabbro are found cutting or incorporated in the ultramafic rocks exposed in the southeast corner of the property. They rarely exhibit any distinct orientation or continuity, but rather appear to be tectonically disturbed and emplaced as part of a large "fault melange". Their relationship to the host ultramafic rocks, both chronologically and genetically, is not known at this time.

Unit 5 - Feldspar Porphyry

One small outcrop of feldspar porphyry was noted in the extreme northeast corner of the property. The rock has, typically, an aphanitic intermediate groundmass, with a highly variable phenocryst content ranging from 5 to 35%. The phenocrysts are usually euhedral to subhedral plagioclase laths.

Unit 9 - Andesite

Andesite outcrops in the extreme northern part of the property, and one small outcrop was exposed in the west-central part of the property. The rock is generally dark green, massive, homogeneous, and barren of any significant veining, alteration or mineralization.

Unit 14 ~ Limestone

Two small outcrops of gray, medium grained, granular re-crystallized appearing limestone outcrop in the extreme northeast corner of the property.

Structural/Stratigraphic Setting

The limited outcrop exposure on the property makes detailed understanding of the local structure and stratigraphy difficult. Based on what outcrop is available, and a review of the available geophysical data (total field magnetics, vertical gradient magnetics, and VLF-EM), it is clear that the vast majority of the property is underlain by a large body of ultramafic intrusive rocks. The northern contact with rocks of the Cache Creek group, as drawn on the enclosed geology map, is based on a distinct and abrupt change in magnetic signature. North of this line, the total field magnetic signature is consistantly low and relatively flat (andesites-limestones), and south of this line the magnetic signature is high, and with a much higher relief.

A second thin wedge of andesites is evident in the west-central part of the property, based on both outcrop exposure and a low flat magnetic signature.

Most intriguing is a distinct low that trends east-west across the property at approximately 15+00N. This may represent another wedge of Cache Creek Group rocks, or may be a alteration/shear zone within the ultramafics.

The stratigraphy of the Cache Creek Group rocks north of the ultramafics is relatively simple, being predominantly a thick sequence of andesitic volcanics with local intercalations of limestone. Local, young intrusions of feldspar porphyry are evident.

3.2 Lithogeochemical Sampling

3.2.1. Methods Employed

In the course of mapping, 17 bedrock samples were collected from the property, and forwarded to Acme Analytical Laboratories in Vancouver for 30 element ICP and gold analysis by convention fire assay and atomic absorption techniques. Samples were taken from all outcrops containing any significant evidence of alteration, veining, mineralization or tectonic disturbance. In addition to the obvious reasons for gold analysis, the 30 element ICP analyses provide very useful trace-element geochemical data. Gold mineralization in the Atlin camp is often associated with highly elevated contents of Cu, Zn, Pb, Sb, As, Cd and Ag, and even in the absence of anomalous gold values, elevated contents of these metals may serve as pathfinders to mineralization.

The ICP data appears in Appendix 2 of this report. All sample locations are plotted on the 1:2000 geology map of the property, in Appendix 1, followed by their sample gold content in ppb.

3.2.2. Results and Interpretation

Of the 17 samples taken from the property none returned any significantly anomalous gold and trace-element anomalies.

3.3 Geophysical Surveys

 \Box

3.3.1. Methods Employed

Scott Geophysics of Vancouver were contracted to complete 24 line-kilometers of total field magnetic, vertical gradient magnetic, and VLF-EM surveys on the property, on behalf of Homestake Mineral Development Company.

Both total field and vertical gradient magnetometer readings were taken at 20 meter intervals along grid lines. All values were corrected for diurnal variation using a fixed base station sampling at 6 second intervals.

Station NPM, Lualualei, Hawaii was used for the VLF-EM survey. Readings of horizontal field strength, in-phase, and quadrature were taken at 20 meter intervals along grid lines.

Instrumentation used in the survey was a Scintrex IGS 2 configured to operate as a total field and vertical gradient magnetometer, and as a VLF-EM receiver. A Scintrex MP4 served as the base station magnetometer and cycled at 6 second intervals. All magnetometer measurements were corrected for diurnal variation with reference to the base station.

The survey data was archieved, processed and plotted using a Corona P.P.C. 400 microcomputer running Scintrex IGS applications software and Scott Geophysics proprietary software.

Appendix 3 contains all pertinant survey results, specifically;

- 1:5000 Ground Magnetometer Survey, Total Field Data
- 1:5000 Ground Magnetometer Survey, Total Field Contour Plan.
- 1:5000 Ground Magnetometer Survey, Vertical Gradient Data
- 1:5000 Ground Magnetometer Survey, Vertical Gradient Contour Plan
- 1:5000 VLF-EM Survey, Line Profile Plots
- 1:5000 VLF-EM Survey, Fraser Filter Data
- 1:5000 VLF-EM Survey, Fraser Filter Contour Plan.

An additional 7 kilometers of total field magnetometer survey was completed over an eastern extension of the work performed by Scott Geophysics, by Homestake Mineral Development Company personnel. Instrumentation was a Scintrex MP4 magnetometer. Because of the reconnaissance nature of the work, no attempt was made to correct for diurnal variation, and only total field data was recorded. The survey results also appear in Appendix 3 as;

> 1:2000 Ground Magnetometer Survey, Total Field Contour Plan, Yellowjacket North Property, Eastern Extension.

3.3.2. Results and Interpretation

i) Total Field Magnetics

As discussed in Section 3.1.2. of this report, the property is predominantly underlain by ultramafic intrusive rocks, which characteristically have a strong magnetic signature, and, due to highly variable magnetite contents, a magnetic signature of high relief.

Also on the property, in the extreme northern section, and west-central section, are andesitic volcanics, whose magnetic signature is much lower and generally flatter.

The results of the total field magnetic survey greatly aided in determining contact locations between these two lighlogical groups, as is obvious from the enclosed contoured total field map.

The data also provided some intriguing results, in the form of distinct east-west trending lows, crossing the property in areas though to be underlain by ultramafics. These linear features, notably the one situated at approximately 15+00N, may represent a zone of magnetite destroying hydrothermal alteration related to a structure. Alternatively, it may also represent an unrecognized thin wedge of Cache Creek Group rocks within the ultramafic.

ii) Vertical Gradient Magnetics

Vertical gradient magnetic data serves to accentuate what otherwise may be subtle relief features in total field magnetic data, and as such is very useful in delineating contacts and structures. The results of this survey, as can be seen from the enclosed vertical gradient contour plan, highlight the features discussed in the total field interpretation, specifically the contact in the north, and the east-west trending linear feature in the vicinity of 15+00N. The data, when contoured, also accentuates within the ultramafics what may be changes in magnetite content and/or depth of cover on ultramafics, as there exists high relief in areas which clearly are uniformly underlain by ultramafic rocks.

111) VLF-EM

Interpretation of the VLF-EM data is taken from the contoured Fraser Filter plan map.

The data exhibits several weak east-west trending highs across the property, that appear to flank prominant magnetic highs. Two are associated with known andesite-ultramafic contacts. The remainder seem inexplicable, and may reflect depth and cover changes or weak structural features within the ultramafics.

4.0 ITEMIZED COST STATEMENT AND ALLOCATION OF EXPENDITURES

4.1 Itemized Cost Statement

 $\left[\right]$

The following expenses were incurred as a direct result of the exploration work described in this report.

1)	Linecutting Costs 34.6 line-kilometers, @\$350.00 per kilometer		
	(as billed by Eaglehead)	Exploration)	\$12,110.00
2)	Geophysical Survey Costs 25.56 line-kilometers of (total field & vertical & VLF surveying	Mag gradient) -	
	@\$150.00 per kilometer		3,834.00
	Computer Processing of da @\$40 per kilometer x 25.	ata, 56 kilometers	1,022.40
	TOTAL GEOPHYSICAL S	URVEY COSTS	\$ 4,856.40
3)	Analytical Costs		
	<pre>17 samples (Analyzed for 30 additional elements) @\$14.25/sample</pre>	Au and	\$
4)	Salaries and Wages		
	Duncan McIvor: (Report 7 1 days (December 11, 198 @\$115.00/day	Preparation) 7)	\$ 115.00
	Phil Southam: 10 days (August 27-31, S @\$85.00/day	eptember 1-6, 1987)	\$ 850.00
	·	SUB TOTAL	\$ 965.00
			102.00
		+20% BENEFITS, ETC.	193.00
		TOTAL	<u>\$ 1,158.00</u>
5)	Food and Accommodation C	osts	
	@\$35/day per man x 10 (f	ield) days	\$350.00
6)	Transportation Costs		
	Fuel and Maintenance on @\$12.50/day x 10 (field)	one vehicle, days	\$ <u>125.00</u>

6) Miscellaneous Field Equipment Costs

- flagging tape, topofil, sample bags, etc. \$ 50.00

TOTAL EXPENDITURES \$18,891.65

1

4.2 Allocation of Expenditures

NORTH GROUP

Allocations are pro-rated based on the number of line-kilometers of grid on each of the following claims:

<u></u>				
CLAIM	REC. NO.	UNITS	REC. DATE	ALLOCATION
ARENT 1	2090	3	15/02/83	\$ 1,511.33
TOP 1	2480	3	15/04/85	\$ 3,778.33
TOP 2	2481	4	15/04/85	\$ 5,667.50
WIND 1	2472	2	21/02/85	\$ 1,511.33
GIN	2468	3	30/01/85	\$ 5,667.49
TONIC	2469	2	13/02/85	\$ 188.92
YJ 7	2678	20	05/08/86	\$ 188.92
YJ 17 FR	2685	1	05/08/86	\$ 188.92
SOUTH GROUP				
ARENT 2	2076	3	22/12/83	\$ 188.91
			TOTAL	\$ <u>18,891.65</u>

DMc/mm

 \Box

SELECTED BIBLIOGRAPHY

Aitken, J.D.

1959: Atlin map area, B.C. Geological Survey of Canada, Memoir 307.

B.C. Department of Mines Annual Report: 1901, p. 757 - 759 1902, p. 984 1903, p. H38 1904, p. H44 1905, p. G77 - 78 1933, p. A78 - A79

Larkin, Curtin and Hubert

1974: The Geochemistry of Gold in the weathering cycle, U.S. Geological Survey Bull 1330.

McIvor, D.F.

1987: Summary report of mineral exploration activity on the Pictou Property, Atlin Mining District, British Columbia -Homestake Mineral Development Company Ltd. in-house report.

Monger, J.W.H.

1975: Upper Paleozoic rocks of the Atlin Terrane, Northwestern British Columbia and South-Central Yukon; Geological Survey of Canada, Paper 74-7.

Ronning, P.A.

Π

1986: Summary Report; Diamond Drilling and Geophysical work, Arent 1 and Arent 2, Beama and Adjacent Claims, North and South Claim Groups, Yellowjacket Property, Atlin Mining Division. HMDC assessment report on file at the B.C. Ministry of Mines.

AUTHOR'S QUALIFICATIONS

I, Duncan Forbes McIvor, do hereby state that;

- I am a graduate of the University of Waterloo, and hold an Honours Bachelor of Applied Science degree.
- I have been practising my profession as an exploration geologist on a full time basis since 1982.
- I have personal knowledge that all information presented in this report is true and accurate.

) uneras Duncan McIvor



	•
	- - -
	-
	•
STATE AL ERANCH	
7 1.02	
60 80 100 M	
7£45	
DUTH SHEET FOR LEGEND	1
-	
RTH SHEET	
ATIONS AND GOLD GEOCHEMISTRY	
ATE FILE CODE	



		-SPRUCE- No OHYCROP	+814 +	
HYDROMANIESIVE SLIDANE	y y	-SPAUCE - NO OWTEROP	A A A A A A A A A A A A A A A A A A A	t on
	- SPRIACE - NO DUITCROP	- SPELACE. No outchop 2.	DRUSH SPRUCE	-JACK PINE +SPRUCE- NO OUTCROP
- SPRUCE - NO OUT	ENE BALSE- ICROP	CARANT	N PALY RU FLAGENA RLY FLAGEN NO DUTCROP	- POPLAR & JACK PINS - NO OUTCROP
-SP/ No o	- SPR UCE - NO OUT CROP	- SPRUCE - O OLITCROP - Grab sample YJ 38269 From Josian zone in serveatinin Afr., med gram, stightly side red., 2% an Karita, 20-30% Magastitz Cancing grains (1ppb Au) - Grab sample YJ 382 TO From ruity sheared Serpine, ast, gold grace, it's will sheared Serpine, ast, gold grace, it's will sheared Serpine, ast, gold grace, it's will sheared respine, ast, gold grace, it's will sheared Serpine, ast, gold grace, it's will sheared Serpine, ast, gold grace, it's will sheared (1ppb Au) PiABAIS/GAGBAD	PopLAR & TA No our	CK PINE - CROP YJJJZ75- Serpentinized ultomatic, prime gurhaved, clight n the gurhace to antionity nut of
- SPELICE - NO OUT CROP	GABERO - CH-gridtigreen to great-green, maxine; hand & Greek - 58-407, plag; creat, ut - 58-407, p	Grab rample YJJJZ JA Grab rample YJJJZ JA Starrd terp. um. with 22 flowman perine minus (1 ppb Am) SCAPENTIVIZED MATEAMARK - oph., Ht. graen, strongly shand, frangly terpenticized Grab sample YJJJZZJI - storgly terpenticized Grab Sample YJJJZZJI - storgly terpenticized (1 ppb Am) - storgly terpenticized -	SEEPENTINIZED ULTRAMARE - grift., pelegrown with black even, - grift., pelegrown with black even, - diversed 1 to etwardy - diversed 1 to etwa	PLACER TAILLINGS
Chabbro / Diabase Chabbro / Diabase Chabbro / Diabase Chabbro / John / AK. green, margine Freet, hand Sind is : 104/80'N, 010 / 644'u Chen, sind Fric Menn, sind Fric Menn, Sur Faces, wit cht All ong Franctier ets, minerer Margers.	SERF. UM. RUBBLE WAR & BOUTORDP RAY BEEN LEVELED ALT - Configuration BEEN LEVELED Processing GABBRO - V.F.g., MARVER BIGHT LEVELED PLACER TAILINGS U PLACER TAILINGS	It Styrentin that is a construction that is a construction It of y 33282 lipped Ta's, 048/64/32 In Massim to Liscal rubble ist cy. 70. SERPENTINIZED ULTRAMAPIC - aph, dKaysee an Fresh surfaces, it brown to and ast with a massime to Liscal rubble ist cy. 70. SERPENTINIZED ULTRAMAPIC - aph, dKaysee an Fresh surfaces, it brown to the strongly surfaces, mod. to strongly to massive. Grab sample Y333263 (isput Atrangle Scopentinized through-out, slight to massive. Grab sample Y333263 (isput) Atrangle Scopentinized to sheaved portion Atrangle Scopentinized to sheaved, portion through to the sample Y333263 (isput) Crab sample Y333264 (isput Au)	SHEARED SEPERTIN SHEARED SEPERTIN -aph., creamy brow on Frish switch are -Grab sample YJ 33 slight to moderate Foroman sine mine (Ipph Au) an articy Mill sheared Au) an art Serp st with a granish (Ipph Au) an art Serp st with a granish (Ipph Au) Grab Sample YJ 33 outerap between g and only slightly to missive to slightly n.v.s. (Ipph Au) Grab Sample YJ 33 sheared, Strongly Sei (Ipph Au)	-cerpton, it apt, durgrey, and steared stighting cerpto, abundant rucky analy weathering, tr. forcentypein minerals (1pp bAW) 12ED altTRAMAFIC un adar answerface, med. to dk. green , mod. to stronging steared & 085/56-70% 1268 - trom a rucky zone at strong shearing, 2008 - trom a rucky zone at strong shearing, 2009 - and a strong sheared with slight metallic left 3267 From strongly streatinized altrame abbreic intrusions. Dutcop is strangly arid maboutely sheared. A trace of Fannya gravies (4ppb AW) 66- Serpentinized altramafic, aph. dk.green, cheared, slight serpto, moderately oridized as 1265 - Serpentinized ultramafic, uph., green, ppc, moderato acidation on surface, n.V.S.
Grab sample 4338261 From breccia zone of g Floating in to./Feckt. mash. Out crop is vary lo h.r.s. (1 pp & Aw) m Fault zone. rean Wilt.green . on Fracture as rally al. p. 2014 um)	GEOLOGICAL BRANC	С Н		LEGEND LITHOLOGIES
	17,492 HOMESTAKE MINERAL DEVELOPMEN			1. BASALT 2. SERPENTINITE (ALTERED WLTR/ 3. COMPLETELY ALTERED (SILICA) 4. MAFIC INTRUSIVE 4a. DIABASE 4b. GABBASE 4b. GABBASE 5. 5. FELDSPAR PORPHYRY 6. SYENITE 7. DIORITE 8. GREENSTONE 9. ANDESITE 9a. HORNBLENDE PORTU
1:2000 6°m 80m (som	YJ NORTH PROPERTY : (SOUTH SHEET WITH SAMPLE LOCATIONS AND GO	GEOLOGY LD GEOCHEMISTRY		10 PYROBENITE 11 GRAPHITIC CHERT 12 ARGILLITE 13 GRANITE 14 LIMESTONE SYMBOLS GEOLOGIC CONTACT (OBSERVED/)
	L	.	:	TAULT X ¹⁷³³²⁷⁰ SAMPLE POINT TTT ROAD TTTTT TRAIL TOPOGRAPHIC/GROMORPHOLOGICAL LITHOLOGY REVERSE CIRCULAT OVERBURDEN DRILL HOLE

- OVERBU	ROEN	









-500			-586 -586
		+ 9849 + 9869 + 9869 + 9869 + 9865 + 9869 +	
		11 88 48 51 59 34 50 50 50 50 50 50 50 50 50 50 50 50 50	
			+ 8495 + 8411 + 8118 + 8118
		* * * * * * * * * * * * * * * * * * *	7.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1
₽ 			2 1 1 1 1 1 1 1 1 1 1 1 1 1
		**************************************	「 1、 1、 1、 1、 1、 1、 1、 1、 1、 1、
		* * * * * * * * * * * * * * * * * * *	
588 			588 (+++++++++++++++++++++++++++++++++++
<u></u>			

SCOTT GEOPHYSICS LTD.	A S \$2000 A Memby Ad frag Elpayte T Equipment: IGS (Scintrex MP-4)	E CALBRANCH	BY - BY - TOUE NORTH





+ + + + + + + + + + + + + + + + + + +	·····································	500
· · · · · · · · · · · · · · · · · · ·		
5388834584444+++++++++++++++++++++++++++		
3.7.18、7.1.18日本の内は B.3.14、1.14、1.14日本の内は B.3.14、1.14日本の内は B.3.14、1.14日本の内は B.3.14、1.14、1.14、1.14、1.14、1.14、1.14、1.14	33月651、382654、38653、34653、4、4、4、4、4、4、4、4、4、4、4、4、4、4、4、4、4、4、4	<u> </u>
· · · · · · · · · · · · · · · · · · ·	**************************************	12
19 18 13 13 13 13 13 14 14 14 14 14 14 14 14 14 14	+++++++++++++++++++++++++++++++++++++	e . 72-
· · · · · · · · · · · · · · · · · · ·	4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	ವ
++++++++++++++++++++++++++++++++++++++	· + + + + + + + + + + + + + + + + + + +	3
+ 5 2 9 + 4 + + + 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	**************************************	
+_8 +_13 +_13 +8 +1 +1	·····································	1
* 13 * 1,15 * + 1,14 * + 1,18 * + 1,18	· + + + + + + + + + + + + + + + + + + +	500 79
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	· + + + + + + + + + + + + + + + + + + +	ah
R & B A A A A A A A A A A A A A A A A A A	····································	
4 * * * * * * * * * * * * * * * * * * *	* + + + + + + + + + + + + + + + + + + +	
	· + + + + + + + + + + + + + + + + + + +	
	1888 	
Sensor separation: 1 meter GEOLGGICAL BRANCH ASSESSION THEPORT INCO	LEGEND:	



	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		
· · · · · · · · · · · · · · · · · · ·	**********	+ ************************************	-500
********************	** + + + + + + + + + + + + + + + + + +		
*********************	**********	۲. هې د ۲. ه. ۲. ه ه. ۲. ه ه. ۲. ه ه. ۲. ه ه.	<u>₽₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩</u>
* * * * * * * * * * * * * * * * * * * *	++++++++++++++++++++++++++++++++++++++	+++++++++++++++++++++++++++++++++++++	
*********************	······································	。。。。 。。 。。 。 。 。 。 。 。 。 。 。 。 、 、 、 、	
***********	* <u>*</u>	+ *************************************	Ø
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		2.9.2' 5 m - r 97.5' 97.5', 1 2 m 9,9" 9,9 9,9 9,9 9, 9 - 19,5 2 - 23,5 2 - 23,5 5 - 24,5 4,7 5 - 24,5 4,7 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5 - 24,5	
+ + + + + + + + + + + + + + + + + + +		۵۹ ۲۰۱۹ مهمهمه ۲۰۰۰ هم ۵۹ مرد مرد مرد مرد ۹ هری مرد ۵۹ هم می مرد ۹ هری مرد مرد مود مرد مرد مرد مرد مرد مرد مرد ۲۰۱۹ مهمه ۲۰۰۰ هم مرد مرد مرد مرد مرد مرد ۹ هم مرد مرد ۹ هم مرد مرد مرد مرد مرد مرد مرد مرد مرد مر	<u></u>
۲. ۲. ۹. ۹. ۹. ۲. ۲. ۵. ۵. ۲. ۲. ۲. ۴. ۴. ۴. ۴. ۴. ۴. ۴.	++++++++++++++++++++++++++++++++++++++	**************************************	
4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.	* * * * * * * * * * * * * * *	**************************************	<u> </u>
++++++++++++++++++++++++++++++++++++++	**********	+ *************************************	580
**************************************	n and an 2 - 1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	***************************************	
***************************************	* * * * * * * * * * * * * * * * * * *	***************************************	
*****************************	**************	۵٫٫۵٫٫۵٫٫۵٫٫۵٫۵٫۵٫۵٫۵٫۵٫۵٫۵٫۵٫۵٫۵٫۵٫۵	1
****************	*****************	+++++++++++++++++++++++++++++++++++++	
	1 1969 		
Station: NPM (Hawaii) - 23.4 kHz Equipment: IGS (Scintrex VLF-4) Note: Data re-sampled at 15 meter Intervals before computing values		TRUE NORTH -	

