ARIS SUMMARY SHEET

District Geologist, Smithers — Off Confidential: 89.12.20

ASSESSMENT REPORT 18608 — MINING DIVISION: Atlin

PROPERTY: Yellowjacket
LOCATION: LAT 59 36 00 LONG 133 33 00
UTM 08 6607551 581850
NTS 104N12E

CAMP: 053 Atlin Camp

CLAIM(S): Arent 2,Wedge Fr.,Discovery
OPERATOR(S): Homestake Min. Dev.
AUTHOR(S): Marud, D.E.;Southam, P.J.
REPORT YEAR: 1989, 468 Pages
COMMODITIES SEARCHED FOR: Gold
KEYWORDS: Pennsylvanian,Cache Creek Group,Atlin Intrusions,Andesite,Basalt Quartz Veins,Serpentinite,Gold,Pyrite
WORK DONE: Drilling,Geophysical,Physical,Geochemical,Geological
DIAD 3255.0 m 23 hole(s);HQ
Map(s) - 20; Scale(s) - 1:500,1:1000
EMGR 5.5 km;VLF
GEOL 30.0 ha
Map(s) - 2; Scale(s) - 1:1000
LINE 5.5 km
MAGG 5.5 km
SAMP 1362 sample(s) ;AU
RELATED REPORTS: 17492,17546
MINFILE: 104N 043

SUMMARY REPORT
DIAMOND DRILLING
ARENT 1, ARENT 2
AND
ADJACENT CLAIMS
NORTH AND SOUTH CLAIM GROUPS
YELLOWJACKET PROPERTY
ATLIN MINING DIVISION

VOLUME I OF IV

NTS. 104N.12

LATITUDE: 59 deg. 36 min. north

LONGITUDE: 133 deg. 33 min. west

OWNER: HOMESTAKE MINERAL DEVELOPMENT COMPANY
CANOVA RESOURCES LTD.

OPERATOR: HOMESTAKE MINERAL DEVELOPMENT COMPANY

BY: DARCY E. MARUD and PHILLIP SOUTHAM

DATE: DECEMBER, 1988

NORTH GROUP

Claim	Record #	Lot #	# Units	Acreage
Arent 1	2090		3	185.33*
Tip	2483		10	617.75
Top I	2480		3	185.33
Top II	2481		4	247.10
Wind I	2472		2	123.55
Wind II	2473		2	123.55
Jack 9 Fr	2734		1	61.78
Tonic	2469		2	123.55
Gin	2468		3	185.33
YJ 9	2680		1	61.78
YJ 16	2684		1	61.78
YJ 17 Fr	2685		1	61.78
YJ 7	2678		20	1235.50
YJ 8	2679		20	1235.50
			73	4509.61

SOUTH GROUP

Claim	Record #	Lot #	# Units	Acreage
Arent 2	2076		3	185.33*
Cub Fr	2087	520	1	7.04*
Wedge Fr	2088	521	1	10.95*
Discovery	2089	184	1	51.56*
Ted 1	2182		9	555.98
Ted Fr	2758		1	61.78
Rip	2482		9	555.98
Zip	2479		3	185.33
Cal II	2141		20	1235.50
Beama	2346		20	1235.50
YJ 18 Fr	2686		1	61.78
YJ 19	2687		1	61.78
Jack Fr	2732		1	61.78
Jack 2	2720		1	61.78
Jack 3	2721		1	61.78
Jack 4 Fr	2708		1	61.78
Jack 5	2722		1	61.78
			75	4716.74

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4. SUMMARY

The Yellowjacket Zone is underlain by a fault melange consisting of blocks and slivers of both serpentinized ultramafics of the Atlin Intrusions (Aitken,1959) and intermediate volcanics of the Cache Creek Group. Two periods of faulting have been noted. The first phase was predominantly low angle thrusting during the Triassic to Jurassic and resulted in the ultramafic rocks being emplaced within Cache Creek Group rocks. The second episode of faulting was sub - vertical, (Pine Creek Fault) and occurred pre or syn - contemporaneously with the intrusion of the Surprise Lake batholith. In both instances the resultant fracturing formed a plumbing system for hydrothermal fluids which resulted in quartz carbonate alteration and quartz and carbonate vein formation. The Cretaceous Pine Creek fault system is responsible for the introduction or remobilization of gold into economic concentrations.

A zone of economic to sub - economic gold mineralization has now been defined. It appears to be truncated by a cross fault at 14+50E and tapers out to the west at about 13+40E. The southern limit appears to be 1+70S. The northern limit of mineralization, however, is harder to define as lower grades over wide widths have been intersected on step outs down dip on the thrust fault. It appears, however, that this is a different mineralizing system and, therefore, leads to the conclusion that the northern limit of economic mineralization, at this time, is at approximately 1+20S. With regards to depth constraints, the main mineralized zone has not been intersected above the 810 meter level or below the 760 meter level.

Another vein zone has been delineated. It lies structurally above the Main Zone and is predominantly flat lying displaying a shallow westerly dip or plunge. No easterly or westerly constraints have been defined, but it does appear that it is closed off to the north and the south.

Anomalous gold values have been encountered throughout the entire Yellowjacket Zone from 12+30E to 15+00E. The most significant of these intersections include 8.06 gpt Au over a core length of 12.0 meters, which includes 33.00 gpt Au over 1.0 meter. Several holes drilled outside the zone failed to intersect any anomalous gold.

A diamond drill program should be commenced in 1989 to further test the down dip extension of Thrust Zone. Further drilling should be implemented to test zones within the Yellowjacket property where the thrust faults are cross - cut by late faults such as the Pine Creek fault.

1. INTRODUCTION

1.1 Location

The Yellowjacket project is located in the valley of Pine Creek, about 9km. east - northeast of the village of Atlin in northern British Columbia. It is on NTS map sheet 104N.12, in the Atlin Mining Division.

Pine Creek is an historic and continuing placer gold producer served by a well - maintained gravel road. The center of activity on the Yellowjacket property is about 12 km.by road from Atlin.

1.2 Property Definition

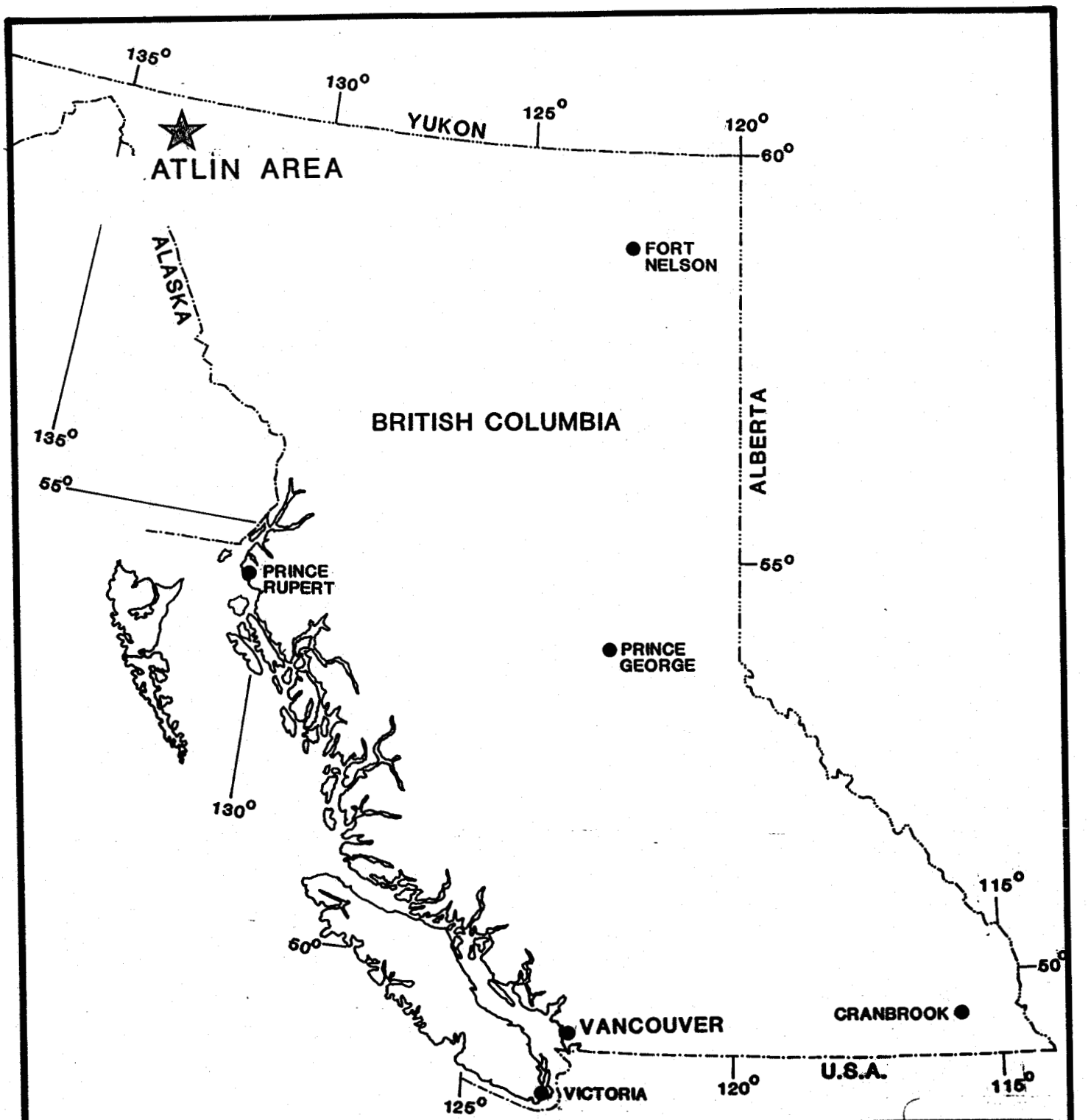
1.2.1 History of Property

The following history is taken from Watkins and Atkinson, 1985:

Several quartz veins carrying free gold were located along the course of Pine Creek in 1899 by placer miners. The Nimrod Syndicate tied up the discoveries and shallow shafts were sunk on the Yellowjacket showing (B.C. Dept. Mines Annual Reports; 1902, p.984; 1903, p.H38; 1904 p. H44; and 1933, p. A78-A79), the Rock of Ages showing (B.C. Dept. Mines Annual Reports; 1903, p. H38 and 1905, p. G78) and the Red Jacket showing (B.C. Dept. Mines Annual Reports; 1901, p. 759 and 1905, p G77-G78). Development work was discontinued in 1903 or 1904.

In the years that followed, all surface features related to the early development of these showings were destroyed by placer mining. The exact locations of the discoveries are not known.

In 1983, local prospectors staked the area of the old discoveries. The claims were optioned to Canova Resources and Tri-Pacific Resources of Vancouver. These companies carried out programs of ground geophysics, diamond drilling and rotary drilling in 1984 and 1985. In 1986, Homestake optioned the properties from Canova and conducted diamond drilling, reverse circulation drilling and grid mapping in 1986, 1987 and 1988.



HOMESTAKE
MINERAL DEVELOPMENT COMPANY

ATLIN PROJECTS
BRITISH COLUMBIA

LOCATION MAP

DRAWN	DATE	FILE CODE	
KMc	11/87	104N/11,12	map 1
Revised			

1.2.2 Owner and Operator

The exploration described in this report was carried out during 1988 by Homestake Mineral Development Company under the terms of an option agreement with Canova Resources Ltd. By fulfilling the exploration expenditure requirements of this agreement during 1988, Homestake can now, under the fourth amendment of this agreement, become fully vested in a JV with Canova by purchasing, by way of private placement, $CDN 75,000.00 worth of Canova shares by January 1, 1989. The resultant JV will be 60% HMDC and 40% Canova Resources Ltd.

1.2.3 Property Terminology

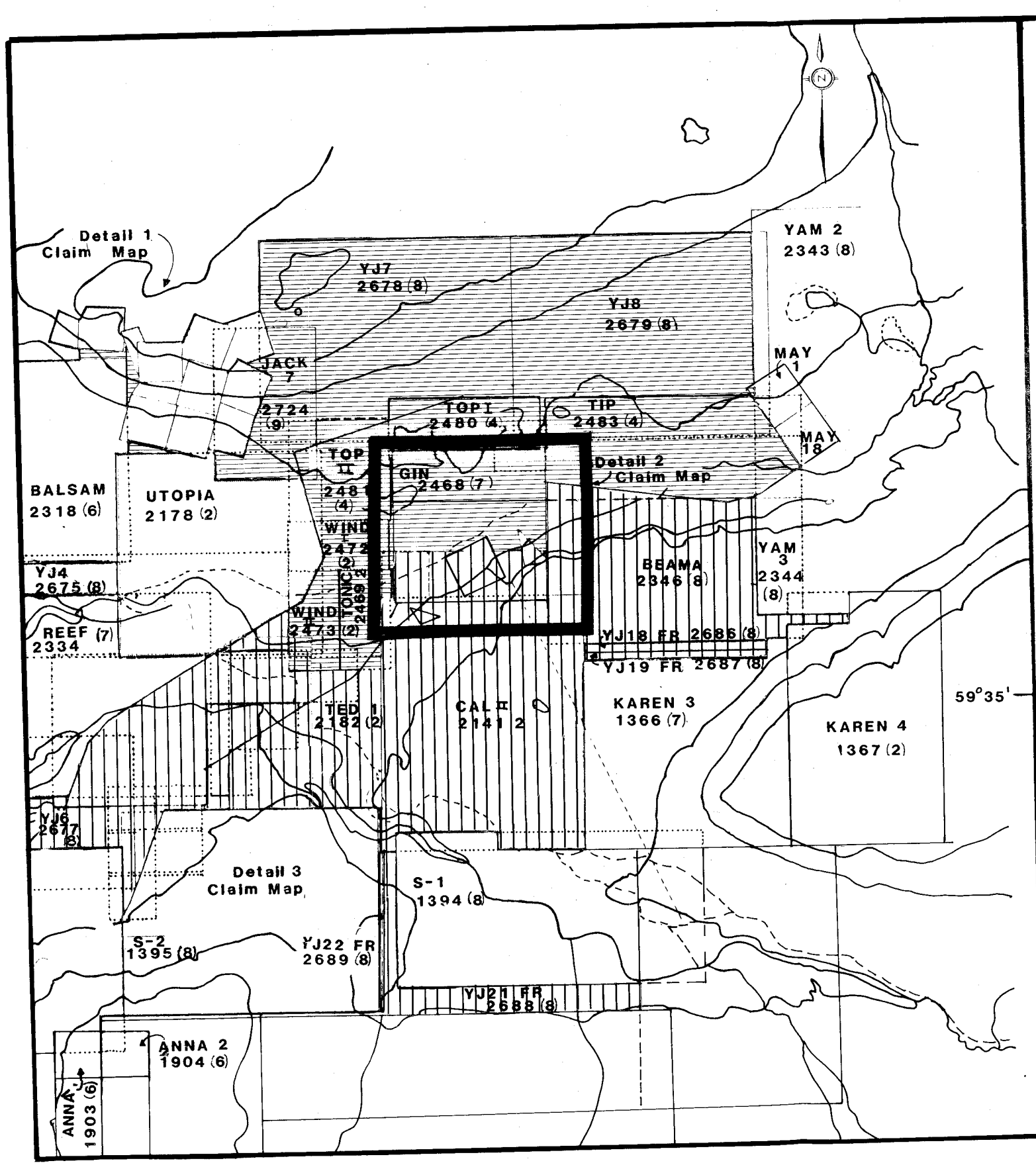
Throughout this report, the term "Yellowjacket Property" is used to describe an area within the North and South claim groups, Figure 2. The term "Yellowjacket Zone" is used on a much more local scale to define an area within the Arent 1 and Arent 2 mineral claims, near the eastern end of their common boundary. It lies on the Yellowjacket Grid between lines 12+00E and 16+00E between 0+40S and 2+00S.

1.3 Work Completed

1.3.1 Diamond Drilling

During the period, May 31, 1988 to September 9, 1988, 23 diamond drill holes were completed in two separate phases of drilling. Total meterage for the year was 3,255 meters. Three holes, YJ-88-35, 49 and 50 were abandoned before completion due to poor ground conditions. On a per claim basis, the drilling was distributed as follows:

Arent 1	1548 meters
Arent 2	254 meters
Rev CG L184	281 meters
Rev CG L521	1172 meters



NORTH GROUP

SOUTH GROUP

See following detailed sketch

0 1000 2000 metres

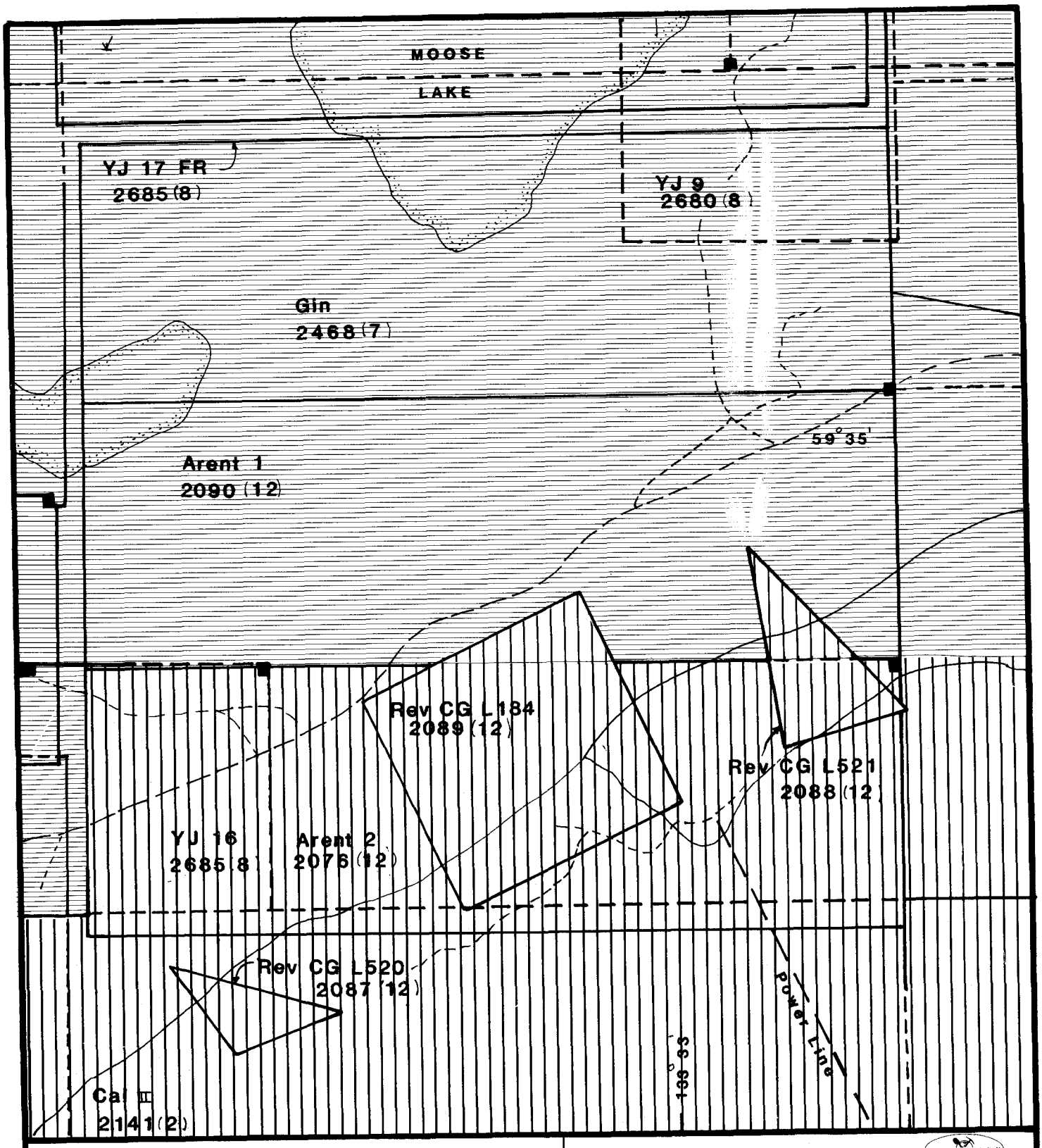
SCALE 1:50,000

HOMESTAKE MINERAL DEVELOPMENT COMPANY

YELLOWJACKET PROPERTY BRITISH COLUMBIA

CLAIM MAP

DRAWN	DATE	FILE CODE	
	11/86	104N/11,12	FIGURE 2
Revised			



roads

rivers

claim line

claim post

NORTH GROUP

SOUTH GROUP

0 200 400 m

SCALE 1:10,000

HOMESTAKE
MINERAL DEVELOPMENT COMPANY

YELLOWJACKET PROPERTY
BRITISH COLUMBIA

DETAIL
CLAIM MAP

DRAWN	DATE	FILE CODE	
MA	12/86	104N/11,12	FIGURE 3

Revised

TABLE 1

HOLE #	START DATE	FINISH DATE	EASTING	NORTHING	DIP	AZIMUTH	ACID TEST	TOTAL DEPTH
88-35	31/05/88	04/06/88	13+70	-2+69	-60	340	-60/46.33 -64/41/74	91.74
88-36	05/06/88	15/06/88	13+70	-0+91	-63	160	-63/21/95 -63/62.18 -63/125.58 -62/164.59 -63/201.78 -64/239.88	244.43
88-37	15/06/88	20/06/88	14+35	-0+95	-60	160	-59/30.48 -59/76.20 -59/122.22 -59/171.00	203.00
88-38	20/06/88	24/06/88	12+60	-0+80	-60	160	-60/19.81 -60/105.46 -62/187.70	203.33
88-39	25/06/88	28/06/88	9+10	-1+15	-60	160	-58/11.28 -58/77.72 -58/132.59	134.26
88-40	01/01/88	03/07/88	5+50	-2+00	-60	340	-60/53.64 -59/81.38 -60/111.56	137.46
88-41	04/07/88	06/07/88	7+25	-2+05	-60	340	-58/42.98 -60/88.70 -60/122.20	146.61
88-42	06/07/88	09/07/88	14+70	-1+00	-54	160	-54/21.34 -55/59.23 -56/119.18 -57/143.56	150.57
88-43	09/07/88	11/07/88	14+00	-0+92	-60	160	-60/62.18 -60/90.22 -60/142.04	146.61
88-44	11/07/88	15/07/88	13+70	-0+65	-60	160	-58/50.90 -58/103.94 -58/161.24	163.97
88-45	15/07/88	17/07/88	14+35	-1+60	-70	160	-69/36.88 -69/62.79 -69/100.89	122.83
88-46	11/08/88	13/08/88	14+00	-0+72	-68	160	-69/239 -69/350	155.14
88-47	13/08/88	16/08/88	13+50	-0+72	-68	160	-67/30.48 -67/59.44 -66/92.66 -66/120.38	151.18
88-48	16/08/88	19/08/88	13+00	-0+72	-68	160	-66/24.69 -67/59.74 -66/91.44 -67/123.75 -67/152.40	157.28
88-49	19/08/88	20/08/88	12+30	-1+40	-60	160		24.69
88-50	20/08/88	20/08/88	12+30	-1+31	-58	160		16.46
88-51	21/08/88	23/08/88	14+35	-1+80	-60	160	-60/93.27 -60/108.51 -62/141.43	142.42
88-52	23/08/88	26/08/88	13+70	-1+60	-60	160	-60/54.86 -60/82.36 -60/118.87 -60/148.13	151.18
88-53	26/08/88	28/08/88	12+30	-1+86	-70	340	-70/26/21 -70/82.30 -70/106.68	116.13
88-54	28/08/88	31/08/88	14+90	-1+60	-70	160	-68/20.12 -70/51/82 -70/102.41 -71/134.11	142.34
88-55	31/08/88	03/09/88	14+20	-1+26	-60	160	-50/30.48 -66/67.06 -64/103.63 -62/132.89 -64/156.97	150.32
88-56	03/09/88	06/09/88	13+75	-1+26	-60	160	-60/65.53 -60/123.75	147.22
88-57	07/09/88	09/09/88	14+16	-1+92	-70	340	-70/44.81 -70/81.38 -69/114.91	145.39
							TOTAL DEPTH	3,254.53

All holes were drilled with HQ size equipment. The core size is 6.35 cms in diameter.

All drill core is stored in downtown Atlin near the Post Office in wooden core racks.

Total diamond drilling meterage for the project since 1984 is 8,324 meters(27,310 ft.)

1.3.2. Line Cutting

5.5 kms. of surface grid lines were located by means of chaining,(Fig.10a). The base line runs at 300 degrees with 50 meter spaced grid lines running perpendicular to it at 210 degrees. The grid was used for running geophysical surveys.

Grid Specs.

line spacing	50 meters
station interval	20 meters

1.3.3 Ground Geophysics

The newly established grid was covered by a magnetics and VLF - EM survey by Scott Geophysics in early April, 1988. Both total field and vertical gradient were measured as part of the magnetometer survey.

1.4 Geological Setting

The Yellowjacket property lies near the western edge of the northwest trending Atlin Terrane, which is underlain by upper Paleozoic oceanic crust (Monger, 1975) It is correlated with the Cache Creek Group rocks of southern and central British Columbia. Within the Atlin Terrane basaltic flows are overlain by chert and thick, shallow-water carbonate rocks. Discordant granitic plutons range in age from late Jurassic to early Tertiary. Remnant Tertiary volcanic and sedimentary rocks are found throughout the area.

Within the Atlin Terrane, large ultramafic bodies define a discordant belt trending across the tectonic fabric of the terrane. The Yellowjacket Property lies at the contact of such an ultramafic body with

greenstones of the Cache Creek Group, along a northeast trending fault in the valley of Pine Creek. There is no surface rock exposure in the vicinity of the Yellowjacket Zone.

2. GEOPHYSICS

The ground geophysical survey included total field magnetics, magnetic gradient and VLF - EM surveys. Detailed specifications of all surveys are listed below in Table 2 .

Table 2 .

SURVEY	INSTRUMENT	READING INTERVAL
VLF - EM	Scintrex IGS2	20 m
Total Field Mag	Scintrex IGS(MP-4)	20 m
Vertical Grad. Mag.	Scintrex IGS(MP-4)	20 m

* VLF - EM station NLK(Seattle) 24.8KHz
** All mag values were corrected for diurnal variation using a fixed base station sampling at 6 second intervals.

The purpose of the survey was to better define possible cross - cutting structures through the Yellowjacket Zone. Previous geophysical surveys gave some indication of their presence and it was believed that a survey conducted perpendicular to the assumed strike of the cross - cutting structures would more closely delineate their true strike and location.

2.1 Magnetometer Survey

Like previous geophysical surveys, this survey indicates that the area within the immediate Yellowjacket Zone is underlain by a contact between Atlin Intrusion serpentinites and volcanics and sediments of the Cache Creek Group. The serpentinites occur as irregular shaped bodies in the north and west portions of the grid area and have a general total magnetic relief of 58,000 - 59,000 gammas. Volcanic and sedimentary rocks of the Cache Creek Group are contoured as broad low magnetic relief areas in the south and east quadrants of the map area; typically total magnetic relief is in the 57,200 - 58,000 gamma range,(Fig. 10f).

Whereas the total field magnetics map is the most useful for identification of lithologies, the vertical gradient magnetics map is the most useful for identification of predominant structural trends. The most prominent trend strikes 120 - 145 degrees. This corresponds to a weak structural trend previously identified in earlier geophysical surveys. Oddly enough the strong 070 degree trend, the strongest one in previous surveys on the Yellowjacket Property, is very poorly defined by this survey. On the whole, the survey helped prove the existence of a cross - cutting structural trend but did not help to further define the 070 degree trend, (Fig. 10g).

2.2 VLF - EM

Interpretation of the VLF - EM data was done with the aid of Fraser Filter contour plots,(Fig. 10e) . Two strong lineaments directions were noted, 120 - 140 degrees and 080 - 090 degrees. Neither set seems to displace the other. The 120 - 140 degree lineament set corresponds with a similar trend in the magnetics. Upon closer inspection, however, it is noted that the two trends are roughly parallel but do not overlie one another.

The above noted VLF trends may be an expression of a number of different sub surface features. These include:

1. Sulfide bearing zones within the Yellowjacket Zone.

2. Graphitic horizons within the Cache Creek Group sedimentary package.

3. Conductive shear zones or fault zones.

3. DIAMOND DRILLING

3.1 Lithologies

Lithologies logged in drill core during 1988 were essentially the same as those seen in previous drill programs. Two new lithologies, however, were noted bringing the total number of different distinct lithologies to 10. A brief description of these will be given here. More detailed descriptions are available in the drill logs in Appendix 1.

Sectional views of each drill hole are included as figures 5a to 5v and 7a to 7h. Plan views are included as figures 6a and 6b.

Unit 1: Basalt

Rocks logged as basalts are generally found in holes which intersect bedrock north of 1+00S. The rocks strike roughly 040 - 070 degrees and dip shallowly NW. They form a thrust fault slice of rock sandwiched between two sheets of serpentinite. To the south they are truncated by a vertical fault zone and to the east by a west dipping fault zone.

The basalts are generally dark green, weakly to strongly chloritized rocks. They are very fine to fine grained and massive. Original mineralogy consists of approximately 20% plagioclase with 80% pyroxene. Fracturing is ubiquitous with most fractures being coated with dark green serpentine.

Unit 2: Serpentinite

Almost all holes within the Yellowjacket Zone intersect some thickness of serpentinite. The rocks are usually completely serpentinized. This is the result of alteration of ultramafic rocks such as pyroxenite and dunite.

The rocks are typically dark blue - grey to blue - green and massive. Usually they are moderately to strongly magnetic due to the presence of up to 10% magnetite, but non-magnetic varieties are observed. Stringers, veinlets and spots of talc, calcite and carbonate are common.

Unit 3: Completely Altered

Most rocks within the Yellowjacket Zone display some alteration. However, some rocks are altered to the point where identification of original minerals and textures is impossible. Such rocks are said to be completely altered and are classified under unit 3. Although serpentinite is a completely altered rock, within the Yellowjacket Zone it is considered to be a separate rock type because of its abundance, unique character and early stage of alteration.

Alteration varies widely throughout the zone but carbonatization is by far the most widespread. This alteration results in the replacement of serpentine by magnesian dolomite and/or magnesite with lesser amounts of talc, tremolite and quartz. These rocks are typically light grey, light green or cream in color and are generally non - magnetic. 2 - 3% black "flecks" of chromite are regularly observed.

Pervasive silicification is not as common as carbonatization but is extensive enough to be noted. It is usually associated with abundant quartz veining, locally in volcanic rocks but more commonly in serpentinite. Silicification is usually accompanied by 2 - 3% fine grained pyrite in volcanic rocks and trace disseminated pyrite in serpentinite.

Other alteration minerals noted in the Yellowjacket Zone include calcite, sericite, chlorite, biotite and mariposite.

Unit 4: Mafic Intrusive Rocks

4a. Diabase

Diabase dykes have been noted in most of the drill holes in the Yellowjacket Zone. They are typically a fine - grained mixture of pyroxene and plagioclase, sometimes exhibiting ophitic texture. Alteration is variable but chlorite, carbonate, serpentine and leucoxene have all been noted.

4b. Gabbro

Gabbro is encountered predominantly east of line 15+00E. It seems to occur as thin, long flat lying sills, often cut by numerous dykes. Thickness of the units is estimated at 30 meters. The gabbro is medium to coarse - grained and relatively unaltered except for abundant thin un-mineralized white quartz veins.

Unit 5: Feldspar Porphyry

Feldspar porphyry has previously been noted in holes 86 - 9, 12, 17. It was not intersected by drilling in 1987 or 1988.

Unit 6: Syenite

Syenite was identified in 1986 in holes 86-13 and 16 but was not intersected in any 1987 or 1988 drill holes.

Unit 7: Diorite

Rocks logged as diorites are generally dark green with up to 40% white feldspar phenocrysts and 60% chloritized? amphibole. They typically have a dioritic texture and often grade in and out of fine grained andesitic rocks. In drill holes they have also been noted to contain hornblende phenocrysts and have been called hornblende andesites (9a).

Unit 8: Greenstone

This unit is used as a field term for any chloritized and/or carbonatized volcanic rock presumably ranging from andesite to basalt. It was only used where a more diagnostic description was not possible.

Unit 9: Andesite

Rocks logged as andesites are intersected south of 1+50S. They seem to form irregular shaped pods, lenses and slivers between 1+50S and 1+90S but are more continuous south of 1+90S.

They are generally dark gray to green, fine grained volcanic rocks made up of primarily plagioclase feldspar with 10 - 15% quartz. Mafic minerals include hornblende, chlorite and biotite.

Two sub units have been recognized and classified on the basis of their predominant phenocrysts. These are 9a, Hornblende Andesite and 9b, Plagioclase Andesite.

Unit 10: Phlogopite(Biotite) Porphyry

This unit was first recognized this year and was noted in holes 37,39,41,45 and 54. It occurs as pods and lenses up to 30 meters long and at depths of 80 to 130 meters.

The rocks are dark grey to dark olive green, very fine - grained and aphanitic. Brown biotite - phlogopite flakes less than 1 mm in size are disseminated through a fine - grained matrix of plagioclase. The rock is often strongly carbonatized.

Unit 11: Intermediate Extrusive

Although this unit is not that common in the Yellowjacket Zone it does bear mention as it is quite unusual. It has been noted only in holes 52 and 55 at depths greater than 100 meters.

The unit is typically dark gray to brown and very fine - grained. It contains between 1 - 15 % white recrystallized knots of quartz. The knots are generally 0.5 - 1.5 cms in diameter and often look to be boudined quartz veins . The matrix of the rock, however shows no sign of tectonism. The unit is very competent and is highly siliceous. Fracturing is only poorly developed and alteration is weak with only minor amounts of carbonate and calcite being present.

3.2 Structural Geology

The Yellowjacket Zone lies within a complexly faulted package of rocks at the contact of a large ultramafic body of Atlin Intrusion affinity and andesites of the Cache Creek Group. The rocks are strongly broken and fractured and have been subjected to several episodes of brittle fracturing and deformation. Gouge and rubble zones are abundant in drill core and range in scale from several centimeters to greater than 10 meters in width.

There has been three different faulting or fracturing systems noted on the property. The timing of movement and deformation and cross - cutting relationships, however, are still poorly understood.

The earliest fault system appears to be a shallow north - westerly dipping series of thrust faults and fractures. In general, they appear to dip between 10 - 30 degrees NW and strike approximately 040 - 070 degrees . North of 1+20S a major fault of this type defines the contact between andesites and serpentinites. Within the hanging wall, the andesites have been intensely fractured and then later rehealed by quartz and carbonate veins containing pyrite and traces of chalcopyrite. The alteration zones are up to 15 meters in width and , for the most part, confined to the hanging wall. It is the opinion of the author that these faults may represent the structures that are responsible for the emplacement of the Atlin Intrusions into the Cache Creek Group and are , therefore, Triassic to Jurassic in age.

A second major fracturing event occurred in rocks that were deformed as a result of a subvertical fault system running down Pine Creek Valley at approximately 070 degrees. The fault was likely active during Cretaceous time. It would appear that most economic gold mineralization on the Yellowjacket property is related to hydrothermal activity along this fault at this time. Later reactivation of this fault zone has resulted in the rocks being shattered and broken in two parallel zones on either side of Pine Creek. These two fault zones, the North and South Fault zones, show up on VLF - EM surveys as long continuous conductors up to 100 meters wide and in drill core as zones of rubble and gouge up to 30 meters wide.

A fault of unknown age has been defined near lines 14+00E and 15+00E south of 1+00S(Figs. 6a and 6b). The strike of the fault, as determined from geophysics, is approximately 110 degrees with an inferred dip of 50 degrees to the SW. Very little information is known about this fault zone except that it appears to truncate mineralization north and eastward and may displace the North and South Fault zones.

3.3 Mineralization

3.3.1 Introduction

Phase V drilling in 1988 was designed to test the extension of existing mineralized zones laterally and to depth and to test structures outside the main zone for similar mineralization. As drilling proceeded, it became apparent that the mineralization follows a broad zone which is generally gently dipping, as opposed to sub-vertical. The latter part of phase V drilling and phase VI drilling concentrated on testing this theory with short stepouts and infill drilling on the main zone. As drilling progressed, three different mineralized zones related to two different fracturing events were noted.

3.3.2 Zone Definition and Geometry

Mineralization within the main zone, (Fig. 5a to 5v, 6a and 6b, 7a to 7h and 8) , occurs as an irregular shaped body truncated to the east by a cross fault at 14+50E and tapers out to the

west at about 13+40E. The southern limit appears to be approximately 1+70S. At depth it appears to be enclosed by the 760m and 810 m levels. To the north, the mineralization is roughly following a contact zone between serpentinite and overlying volcanic rocks. This contact zone would appear to be a thrust fault dipping gently to the NW at approximately 20 - 30 degrees and striking at 040 degrees. It is apparent , however, that mineralization along this thrust fault is of a different nature than the rest of the mineralization in the main zone. Evidence for this is here listed:

1. Mineralization within the main zone, between 13+40 and 14+50E and 1+30 and 1+70S contains generally erratic gold grades with a number of high grade intersections. Mineralization along the thrust fault, north of 1+30S, however, is generally quite consistent in gold grade averaging 1.0 gram Au/tonne(gpt). No intersections greater than 3.50 gpt Au have been noted.

2. Sulfide content within veining in the thrust fault averages 3% pyrite with some instances of greater than 30% pyrite. Pyrite content in veins between 1+30S and 1+90S is less than 1%. There is also a trace to 3% chalcopyrite in the thrust fault controlled veining.

3. Widths of veining systems and alteration envelopes along the thrust fault contact are often in excess of 10 meters. Within the southern portion of the main zone, they are usually less than 2 meters in width and often quite erratic.

It can be argued that the mineralization south of 1+30S has only been remobilized by the Pine Creek Fault system and has not been introduced from a younger source accompanying the hydrothermal activity. This is a valid argument and should not be discounted. More geochemical work is needed to properly distinguish between the two different mineralizing systems.

For ease of description, mineralization associated with the thrust fault will now be called the Thrust Zone, while that found between 1+30S and 1+70S will now be known as the Main Zone, previously the East Zone.

A third zone of mineralization, the West Zone, has been noted sitting structurally above the main zone between the 810 and 860 meter levels,(Figs. 5a to 5v, 6a and 6b and 7a to 7h). The zone, defined by several anomalous and ore grade intersections, plunges, (or dips?) gently westward at 5 - 15 degrees. It lies between lines 14+20 and 12+30E and 1+40 and 1+80S. It would appear that this zone is also related to hydrothermal activity along the Pine Creek Fault system. Drill density, within the West Zone, is still fairly sparse, therefore, the zone is still poorly defined.

3.3.3 Occurrence and Mineralogy

Based on results of the 1988 drilling program, the mineralization style for all three zones is basically the same as described in previous reports. It consists of coarse gold hosted in light grey to white quartz veinlets generally less than 2 centimeters in thickness. The veining is mainly found in the more brittle volcanic rocks, but also occurs in altered serpentinites. Carbonate bleached, silicified and pyritized envelopes are common around quartz veinlets and accompany most of the higher grade vein systems. It is important to note the difference between the carbonate bleaching and the more pervasive carbonatization of the volcanic rocks which is not directly related to mineralization.

In many instances, the veining becomes frequent enough to form stockworks. These stockwork systems host the gold grades which approach sub-economic to economic widths of 3.0 gpt Au or better. Some of the gold is visible and most is at least 150 microns in size.

Sulphide mineralization within the Yellowjacket Zone continues to be an unreliable indicator of gold mineralization. Not all of the gold intersections are associated with pyrite, but many of the sub-economic intersections are locally enriched with pyrite. The enrichment

varies from 1 to 25% of very fine grained to fine grained, euhedral, disseminated pyrite, occasionally as haloes around the quartz veinlets. One zone of enrichment in hole 55 contains 40 to 60% massive pyrite with a trace to 3% of chalcopyrite next to a light grey quartz veinlet with visible gold. The gold, however, is free within the veinlet and, therefore, was probably deposited during a different mineralizing stage than the sulfides.

Gersdorffite (NiAsS) and arsenopyrite have also been noted in Yellowjacket drill core. Both minerals account for the anomalous arsenic values detected while gersdorffite is presumably the host to most of the antimony. Occasionally arsenic and antimony enrichment do correlate with gold.

Other sulfide minerals noted in the Yellowjacket Zone include millerite (NiS), chalcopyrite and pyrrhotite. None of these are related to gold mineralization.

Mineralization tends to be focused near lithological contacts, predominantly between volcanic rocks and serpentinite. The contact zones are generally broken and fractured, due to competency contrast, creating ideal porosity for vein emplacement.

Table 3 summarizes the best gold intersections from 1988 drilling.

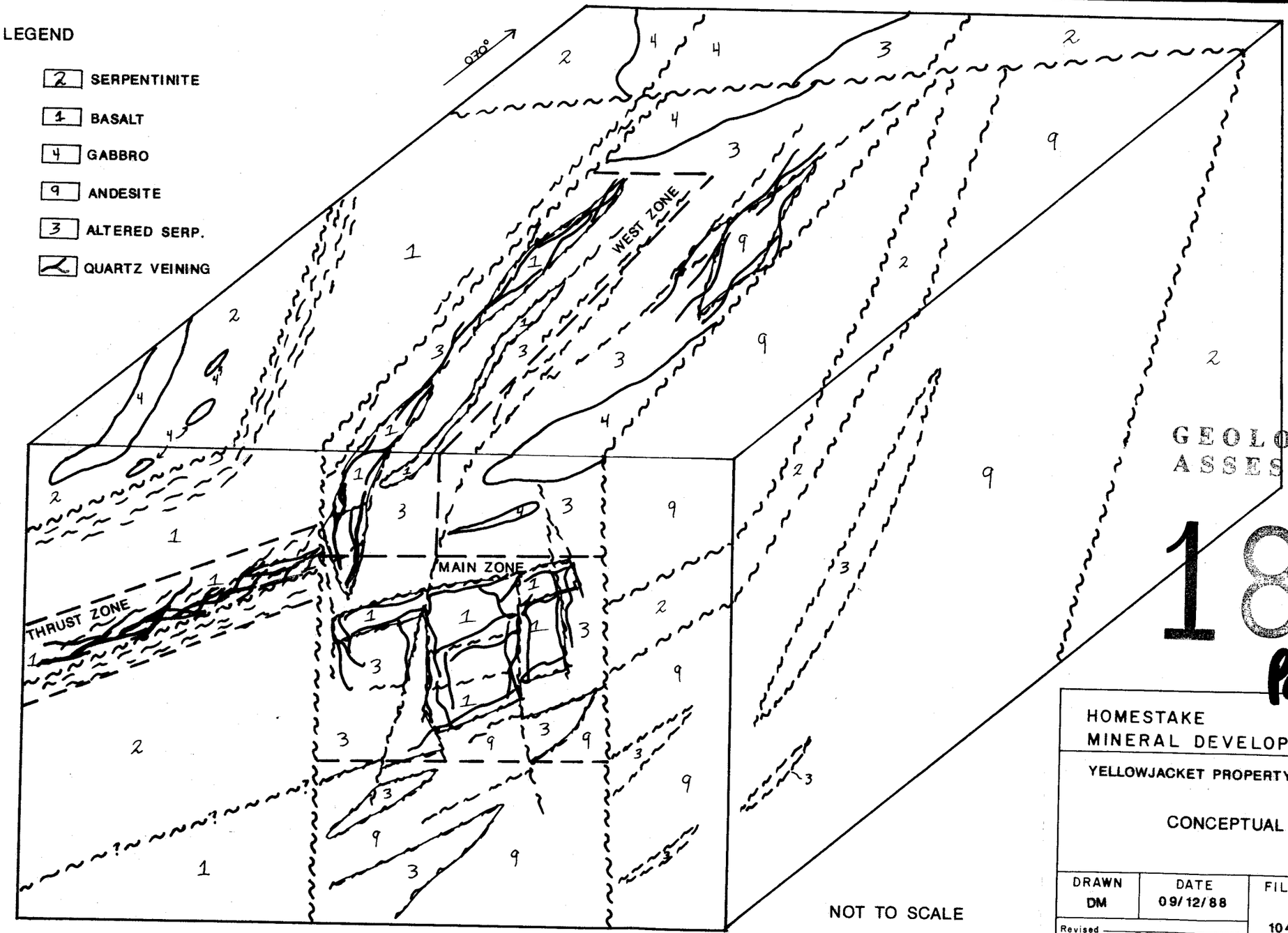
3.4 Geological Synthesis

The Yellowjacket Zone lies on a contact between serpentinized ultramafics of the Atlin Intrusions (Aitken,1959) to the north and the andesites of the Cache Creek Group to the south. There is an historic and ongoing argument as to the origin of the ultramafic bodies, but it would appear, from recent drilling, that they are emplaced as sheets within the Cache Creek Group rocks along NE trending thrust faults dipping shallowly to the NW. Later sub-vertical faulting along the Pine Creek valley has further deformed the rocks creating a fault melange consisting of intermingled blocks and slivers of volcanic and ultramafic rocks.

Mineralization on the property is hosted by thin light grey to white quartz veins and veinlets emplaced as a result of open space filling of fractures and breccia zones. The fracturing and brecciation would appear to be related to two different stages of brittle deformation.

LEGEND

- 2 SERPENTINITE
- 1 BASALT
- 4 GABBRO
- 9 ANDESITE
- 3 ALTERED SERP.
- QUARTZ VEINING



NOT TO SCALE

HOMESTAKE
MINERAL DEVELOPMENT COMPANY

YELLOWJACKET PROPERTY BRITISH COLUMBIA

CONCEPTUAL MODEL

DRAWN	DATE	FILE CODE	
DM	09/12/88	104/N/12	FIG. 9
Revised REV 1			

TABLE 3

SUMMARY OF ASSAY RESULTS
1988

Hole	(meters) From	To	Length (m)	g Au/t
PHASE V				
YJ-88-36	91.0	92.0	1.0	1.30
	95.0	98.0	3.0	11.08
	including			
	95.0	96.0	1.0	32.19
	207.87	211.0	3.13	0.37
	217.0	218.22	1.22	0.45
	224.0	227.0	3.0	0.31
YJ-88-37	77.0	78.0	1.0	0.33
	95.0	96.0	1.0	0.48
	97.0	99.0	2.0	4.07
	125.0	134.23	9.23	0.38
YJ-88-38	160.0	165.65	5.65	0.90
	including			
	162.0	164.0	2.0	1.65
YJ-88-41	97.0	99.0	2.0	0.63
YJ-88-42	103.0	104.0	1.0	0.31
	114.0	115.0	1.0	0.31
	124.0	125.7	1.7	1.71
	147.0	150.57	3.57	1.07
	including			
	149.0	150.57	1.57	1.71
YJ-88-43	68.0	71.50	3.50	2.72
	including			
	69.49	71.50	2.01	4.01
	87.0	88.0	1.00	0.48
	97.0	99.0	2.00	0.57
	105.0	117.65	12.00	1.75
	including			
	114.0	115.0	1.00	5.73
YJ-88-44	111.0	119.0	8.00	1.31
	124.0	126.0	2.00	1.36
YJ-88-45	34.0	37.0	3.00	1.89
	including			
	35.0	37.0	2.00	2.54
	57.0	63.0	6.00	0.34
	including			
	61.0	62.0	1.00	0.99
	75.0	77.28	2.28	1.34
	including			
	75.0	76.0	1.00	2.61
	80.0	83.0	3.00	1.45
	including			
	82.0	83.0	1.00	2.95

Hole	(meters) From	To	Length (m)	g Au/t
PHASE VI				
YJ-88-46	104.0	108.0	4.00	1.01
YJ-88-47	113.0	114.0	1.00	4.32
	118.0	119.0	1.00	0.89
	123.0	124.0	1.00	0.94
	125.0	126.0	1.00	0.40
	127.0	128.0	1.00	0.30
	136.0	138.0	2.00	0.43
YJ-88-48	134.0	136.0	2.00	3.39
	138.0	139.0	1.00	0.48
	142.0	143.0	1.00	0.46
YJ-88-53	46.0	47.0	1.00	2.16
	48.0	50.0	2.00	0.47
YJ-88-54	109.0	110.0	1.00	0.48
YJ-88-55	20.0	22.0	2.00	6.79
	87.0	90.0	3.00	5.27
	including			
	89.0	90.0	1.00	12.10
	91.77	93.0	1.23	1.61
	105.0	107.0	2.00	0.72
	119.0	121.0	2.00	0.82
	150.0	152.0	2.00	0.35
YJ-88-56	77.0	79.0	2.00	0.37
	82.0	83.0	1.00	4.90
	87.0	89.0	2.00	0.42
	96.0	98.0	2.00	1.68
YJ-88-57	38.0	41.0	3.00	1.99
	including			
	40.0	41.0	1.00	4.53
	73.0	75.0	2.00	0.35
	80.0	82.0	2.00	0.66
	92.0	104.0	12.00	8.06
	including			
	93.0	94.0	1.00	6.69
	94.0	95.0	1.00	15.84
	95.0	96.0	1.00	12.14
	96.0	97.0	1.00	37.31
	101.0	103.0	2.00	10.94
	108.0	114.0	6.00	5.58
	including			
	108.0	110.0	2.00	15.67

The first stage of deformation and faulting occurred during the emplacement of the Atlin Intrusives (Aitken,1959) along NE trending thrust faults during Triassic to Jurassic time. The thrust faults, as seen in drill core, caused intense brecciation and fracturing in the brittle andesites but less fracturing in the more ductile serpentinites. The fracture and breccia zones were later healed by quartz and carbonate with trace amounts of gold, silver and base metals. It is possible that the fluid and convective source for the hydrothermal event was the Fourth of July Creek batholith of Late Jurassic to Cretaceous age, the Surprise Lake batholith of Cretaceous age or an older undetermined source. The younger batholiths at their closest points are about 5 kilometers north and west of the Yellowjacket property.

The Pine Creek fault structure resulted from further brittle deformation within the Yellowjacket Zone along the rest of its strike length. The fault was most likely active during the Cretaceous Period , probably pre to syn - contemporaneous with the intrusion of the Surprise Lake batholith. Hydrothermal alteration along the fault system was intense and resulted in alteration of most lithologies. Si, CO2 and Ca were introduced and reacted with the Fe and Mg rich country rocks to produce intense carbonatization of most lithologies and quartz and carbonate filling of open fractures and breccia zones. Gold, silver and base metals were carried in hydrothermal solutions and deposited in fractures and porous zones during pressure release, Ph change and/or temperature change. The Surprise Lake batholith may have served as the major fluid and heat source needed to run the hydrothermal convective system.

Reactivation of the Pine Creek fault system has occurred more recently as the North and South fault zones on the Yellowjacket property.

Cross - cutting faults have probably been activated during the intrusion of the Surprise Lake batholith and are syn to post - contemporaneous with the Pine Creek fault system.

As a summary of the above synthesis, the following sequence of events is proposed:

Mississippian to Permian

Deposition of Cache Creek Group rocks in an oceanic crust or marginal basin type setting Formation of Atlin Intrusions (Aitken,1959) as ocean floor ophiolites or intrusion as Alaskan type ultramafics.

Triassic to Late Jurassic

Thrust faulting. Thrusts Atlin Intrusions (Aitken,1959) into Cache Creek Group rocks. Given that the Cache Creek Group is at the youngest Permian and that the Pine Creek fault cuts the thrust fault this age span seems reasonable.

L. Jurassic - E. Cretaceous

Intrusion of Fourth of July Creek batholith. Hydrothermal activity along thrust fault contacts with introduction of Au, Ag, Cu, Pb and Zn.

M. Cretaceous - L. Cretaceous

Activation of the Pine Creek fault system pre or syn - contemporaneous with intrusion of the Surprise Lake batholith. Hydrothermal activity along Pine Creek fault with remobilization or introduction of Au, and Ag.

L. Cretaceous

Cross - faulting as a result of final intrusive phase of Surprise Lake batholith.

Recent

Reactivation of Pine Creek fault structure (North and South faults)

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