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GEOLOGICAL AND GEOCHEMICAL INVESTIGATION PUNCH WEST, PUNCH EAST, KCM WEST AND KCM EAST MINERAL CLAIMS SNASS CREEK-TULAMEEN RIVER AREA HOPE, B.C.

SUMMARY

The Punch Bowl claim group is located 33 km east of Hope, B.C. The property is underlain by clastic sedimentary rock of the Upper Jurassic (?) Dewdney Creek Group and by younger granitic intrusives. Quartz-sulphide veins have been found in north to northwest-trending fault zones near contacts between the intrusives and the clastic sediments. Rock samples containing up to 7200 ppm lead, 770 ppm zinc, 1100 ppm arsenic, 215 ppb gold and greater than 100.0 ppm silver have been returned from this vein material. Anomalous soil values up to 830 ppb gold have also been detected. A threephase programme of additional exploration is recommended, commencing with detailed geological mapping, additional soil and rock geochemical sampling and hand trenching. Phase 1 would require a budget of \$28,050. Similar surveys plus diamond drilling would require \$67,200 in Phase 2. Additional diamond drilling in Phase 3 may require \$125,000. The total of the threephase programme may require an expenditure of \$220,250.

INTRODUCTION

The Punch West and East and KCM West and East mineral claims are located in southwestern British Columbia near the divide between south-flowing Snass Creek and east-flowing Tulameen River, approximately 33 km east of Hope, B.C. The claims are situated along the boundary between the Similkameen and New Westminster mining divisions. Co-ordinates latitude 49°16' north and longitude 121°00' west cross the property. Elevation ranges from 1220 m to 2310 m. The property lies within NTS map sheets 92 H/6 E and 92 H/7 W. Statistics of the claims are as follows:

Claim Name	Record No.	No. of Units	Record Date
Punch West	2208(8)	20	August 7, 1984
Punch East	2207(8)	20	11 11 11
KCM West	2206(8)	20	19 88 88
KCM East	2205(8)	20	tt st i

Each claim is comprised of 20 units (500 hectares) giving a total of 2000 hectares in the claim group.

Access to the property is best accomplished by helicopter stationed at Hope, 33 km to the west. Current logging operation with road access is approximately 3 km to the north of the claim group in the Tulameen River drainage.

Several old claim posts and an old trench or caved adit in the Punch Bowl Creek grid area attest to past exploration. More recently, during 1986, Merritt Minerals Inc. conducted a soil survey over part of the Punch Bowl claim group. During late July, 1987, a soil geochemical survey and a geological mapping programme were conducted on the property by Arctex Engineering Services and is the subject of this report.

REGIONAL GEOLOGICAL SETTING

The Punch claim group lies between the Cascade Fold Belt and Intermontane Belt of southern B.C. The claim area is underlain by Upper Triassic and Lower Cretaceous clastic sediments which were deposited in a basinal environ-





ment. Later wrench faulting took place along the Hozameen Fault to the west and the Pasayten Fault to the east. Major dextral transcurrent movement has taken place along the Pasayten Fault in Late Cretaceous or Early Tertiary time.

Quartz diorite intrusion during Late Cretaceous (Lightning Creek or Black Peak stocks) has taken place in the region. Subsequent intrusion of quartz monzonite took place during Late Tertiary (Needle Peak Pluton) (Roddick et al., 1976).

PROPERTY GEOLOGY

Stratigraphy

Most of the outcrop area that was examined west of Punch Bowl Lake is composed of coarse clastic sedimentary rock of the Upper Jurassic (?) Dewdney Creek Group. These sediments are well indurated and form prominent ledges and ridges. Lesser quantities of pebble conglomerate and siltstones or argillite are also present. The beds of the Dewdney Creek Group generally trend north to northwest and exhibit variable dips.

Intruding the sedimentary rocks are dykes, sills and small plugs of diorite. The age of these intrusives is younger than Upper Jurassic and may be as young as Late Tertiary. The diorite is generally fine-grained with abundant hornblende, feldspar and minor quartz. Locally the diorite contains xenoliths or breccia fragments of a slightly more mafic igneous rock.

Narrow, dark, fine-grained, amygdaloidal basalt dykes were also observed which intrude the Dewdney Creek Group.

A medium-grained granodiorite with weak feldspar phenocrysts was observed in the Punch Bowl Creek grid area. It occurs in fault contact with the Dewdney Creek Group. It also displays strong pyrite mineralization and surficial iron oxide.

Structure

The Dewdney Creek Group displays moderate folding. Anticlinal and synclinal structures are visible in cliff faces along line 2+00S. Overturning was also noted.

Drag folds were noted adjacent to the prominent east-west trending fault near line 3+00S. A left lateral movement is indicated. Breccia fragments and strong clay seams within the fault zone are common.

Northwest-trending faults which occur adjacent to diorite intrusives were seen at 3+42S 0+50W and near 3+00S 1+00W. Strong quartz-sulphide mineralization is associated with the 3+42S 0+50W fault.

Strong faulting, which has also localized sulphide mineralization, is present in outcrops along Punch Bowl Creek near line 12+00N. Here quartz-sphalerite veins occur near a faulted, northwest-trending contact between granodiorite and fine-grained metasediments.

Mineralization and Rock Geochemistry

Three types of mineralization were sampled on the Punch claim group. Rock sample descriptions and geochemical analysis for copper, lead, zinc, silver, arsenic and gold are listed in the Appendix and shown on the accompanying geology maps.

In the central part of the main Punch Bowl grid area, quartz-pyrite-galena mineralization occurs in a vein within a northwest-trending fault zone. This vein is located at 3+42S 0+50W at the diorite/sandstone contact. A 0.4 metre chip sample across the vein contained 118 ppm Cu, 1700 ppm Pb, 600 ppm Zn, greater than 100.0 ppm Ag (upper limit of geochemical detection), 5700 ppm As, and 190 ppb Au. A float sample of similar vein material collected from the talus slope below this sample contained equally high values.

Eighty metres to the northwest along the projected trend of the vein, four rock chip samples each 5 m in length were collected along the ridge crest outcrops. Here quartz-calcite veins and siliceous zones near diorite dykes are present but significant base or precious metal values were not detected.

The second type of mineralization is found between 3+30S 1+15E and 3+12S 2+30E. Here an east-west trending fault zone contains abundant orange-brown quartz-carbonate breccia in widths up to 2 m. However, sulphides are scarce and significant base metals were not detected in rock samples. A high value of 60 ppb Au was returned from rock at the east end of the fault.

The third type of mineralization is typical of "porphyry copper" type mineralization and can be found along Punch Bowl Creek near line 12+00N 7+00E. All exposures along the creek in this area are laced with stockwork pyrite veinlets in weak to moderately silicified and bleached metasediments. Sample 10+60N 7+00E is typical of this type of mineralization. It did not contain significant base or precious metals. Superimposed on the stockwork pyrite mineralization are quartz-sphalerite veins, as can be seen at 12+25N 7+00E. Here a 0.1 metre chip sample across a vertical vein contained 253 ppm Cu, 5200 ppm Pb, greater than 10,000 ppm Zn, 13.0 ppm Ag, 160 ppm As, and 85 ppm Au.

SOIL GEOCHEMICAL SURVEY

During July 1987, a soil geochemical survey was undertaken at two locations on the Punch claim group. The main grid was established 400 m west of Punch Bowl Lake near the centre of the claim group. East-west grid lines were surveyed by hip-chain and compass from a central north-south baseline which follows the main ridge. A line separation of 100 m was used with soil sample locations at 50 m stations along these lines. More detailed sampling at 25 m stations was undertaken in the central part of the grid.

A smaller soil survey grid was established 1200 m north of Punch Bowl Lake. East-west grid lines with 50 m separation and samples at 25 m stations along the lines were used.

Samples were retrieved at a depth between 15 and 35 cm below the surface by the use of a narrow-bladed spade. Soil samples were collected in Kraft paper envelopes and shipped to Chemex Labs in North Vancouver, B.C.

A total of 286 soil samples were collected, 223 from the main grid and 63 from the Punch Bowl Creek grid. All samples were analysed for gold and arsenic. Certificates of analysis and analytical procedures are included in the Appendix. Results are also plotted on geochemical survey maps included in the back pocket of this report.

Tally histograms and cumulative frequency plots have been constructed for gold and arsenic using the total population of 286 samples. Data have been plotted on 3-cycle lognormal probability paper to determine threshold and anomalous values.

Gold

Gold in soils ranges from less than 5 ppb (parts per billion), which is below the detection limit, to 830 ppb. In the population of 286 samples, 265 samples returned less than 5 ppb Au. Of the remaining samples, those that contain greater than 11 ppb may be considered anomalous. The group of samples which contain between 6 and 10 ppb could be considered threshold value.

Within the main grid area, four anomalous values occur in the southwest quarter, including the highest value of 830 ppb Au. This area is probably underlain by northwest-trending sediments of the Dewdney Creek Group which have been intruded by small diorite dykes, sills or plugs. Furthermore, the mineralized shear zone mapped at 3+42S 0+50W trends southeasterly toward the anomalous area.

Within the Punch Bowl Creek grid area, a single anomalous gold value of 30 ppb was obtained from the northwest corner of the grid. This area may be near the sediment-granodiorite contact.

Arsenic

Arsenic in soils of the Punch Bowl claim group ranges from 3 to 2400 ppm (parts per million). Statistical treatment of the 286 samples indicates threshold values between 24 and 107 ppm.As. Values over 107 ppm As could be considered anomalous.

The highest arsenic value occurs in the southeast part of the grid at 6+00S 4+00E. Here, 2400 ppm As and 830 ppb Au are present in soils where abundant diorite intrusive float was also observed.

The largest arsenic anomaly occurs on the slopes west of Punch Bowl Lake. Fifteen contiguous samples contain greater than 107 ppm As. From 3+00S 0+25E where 1000 ppm As was returned, to 4+00S 3+75E where 210 ppm As are present, a broad sinuous anomaly over 100 m wide is underlain by sandstone of the Dewdney Creek Group. At least one major east-west fault bisects this anomaly. Quartz-carbonate breccia with minor sulphides is present in this area. However, two rock samples did not contain significant arsenic.

Several other arsenic anomalies are present northwest of the aforementioned anomaly. At 3+00S 2+50W, 430 ppm As are present, and at 2+00S 5+00W, 590 ppm As were detected. In each case, broad zones of threshold values of arsenic surround the anomalies. Sandstone and lesser diorite also outcrop in the vicinity.

Within the Punch Bowl Creek grid a single anomalous arsenic value of 110 ppm As was returned. It occurs in the northwest corner and is also adjacent to the single gold anomaly of 30 ppb Au.

CONCLUSIONS

At several areas on the Punch Bowl claim group clastic sedimentary rocks of the Upper Jurassic (?) Dewdney Creek Group are intruded by younger diorite and granodiorite. At two areas, north to northwest-trending fault zones host sulphide mineralization near these intrusive-sediment contacts.

At 3+42S 0+50W quartz-galena vein mineralization contains more than 100.0 ppm silver and 190 ppb gold. On trend of this vein-fault zone to the southeast, anomalous gold values in soils of up to 35 ppb Au have been collected. Three hundred and fifty metres to the east of this anomaly, soils contain up to 830 ppb Au in an area which shows abundant diorite float. It is expected that precious metals may have been deposited at diorite-sediment contacts where faulting may have taken place.

In the Punch Bowl Creek grid area strong pervasive stockwork pyrite mineralization is seen along the banks of the north-flowing creek. Base metal mineralization is contained in narrow, north-trending veins which are superimposed on this "porphyry" mineralization. One gold and arsenic soil anomaly was detected on the west side of the grid which may be near the margin of the pyrite halo.

RECOMMENDATIONS

Gold and arsenic soil anomalies, particularly east and south of the 3+42S 0+50W vein, should be carefully examined and rock samples from outcrops collected. Hand-trenching southeast along strike from the 3+42S 0+50W vein should also be undertaken. Trenching and detailed geological mapping will also be required at 6+00S 4+00E where 830 ppb Au was returned from soils.

The limits of the present soil survey grid should be extended eastward into the Punch East and KCM East claims. Fifty-metre soil sample stations on 100-m line separations are suggested.

Geological mapping with additional soil sampling should be undertaken north and east of the gold-arsenic soil anomaly in the Punch Bowl Creek grid. Although "copper porphyry" type targets are not economically attractive for base metals at this time, the possibility of peripheral precious metal veins should be considered.

If exploration is successful in delineating additional mineralization, a diamond drilling programme would be required to test for values at depth.

COST ESTIMATE

Phase 1

Detailed geological mapping, rock geochemical sampling and hand-trenching of anomalies and mineralized veins; continued soil sampling in Punch Bowl Lake basin and west of Punch Bowl Creek grid; itemized as follows:

Geological mapping and ro sampling	ock geochemical	\$4	,500	
Hand-trenching and soil g sampling	geochemical	6	,000	
Geochemical analyses		4	,000	
Camp, food, and supplies		4	,000	
Helicopter and transporta	tion	2	,500	
Engineering and supervis	ion	2	,500	
Reporting		2	,000	
		25	,500	
Contingencies @ 10%		2	,550	
	Total, Phase 1	28	,050	\$ 28,050

Phase 2

Detailed soil and rock geochemical survey with geological mapping in areas detected in Phase 1; diamond drilling of targets as delineated in Phase 1; itemized as follows:

Geological mapping and rosampling	ock geochemical	\$ 5,000	
Detailed soil sampling and trenching	hand-	4,000	
Diamond dirlling, 200 m at	t \$120/m	24,000	
Geochemical analyses and	assays	4,000	
Camp, food and supplies		6,000	
Helicopter and transporta	tion	4,000	
Engineering and supervis	ion	5,000	
Reporting		4,000	
		56,000	
Contingencies @ 20%		11,200	
	Total, Phase 2	67,200	\$ 67,200

Phase 3

Continued	diamond	drilling,	allow	\$125,00	0	L25,000
		Tc	otal, Phases	1, 2 and 3	\$2	220,250

Results of each Phase should be compiled into an engineering report; continuance to the subsequent Phase should be contingent upon favourable conclusions and recommendations from an Engineer.

SSOCIATION Respectfully submitted, & PAUL KALLOCK GEOLE Paul Kallock **Consulting Geologist** FELLOW Vancouver, B.C., October 3, 1987

GEOLOGIST'S CERTIFICATE PAUL KALLOCK

I, Paul Kallock, do state: that I am a Geologist with Arctex Engineering Services, 301 - 1855 Balsam Street, Vancouver, B.C.

I Further State That:

- 1. I have a B.Sc. degree in Geology from Washington State University, 1970. I am a Fellow of the Geological Association of Canada.
- 2. I have engaged in mineral exploration since 1970, both for major mining and exploration companies and as an independent geologist.
- 3. I have authored the report entitled, "Geological and Geochemical Investigation, Punch West, Punch East, KCM West and KCM East Mineral Claims, Snass Creek, B.C., Similkameen & New Westminster Mining Division, B.C." The report is based on my fieldwork carried out on the property and on previously accumulated geologic data.
- 4. I have no direct or indirect interest in any manner in either the property or securities of Merritt Minerals Inc., or its affiliates, nor do I anticipate to receive any such interest.
- 5. I consent to the use of this report in a prospectus, or in a statement of material facts related to the raising of funds.



Vancouver, B.C. October 3, 1987

- Ray, G.E. 1986. The Hozameen fault system and related Coquihalla serpentine belt of southwestern B.C. Can. J. Earth Sci. 23; 1022-1041.
- Roddick, J.A., Muller, J.E. and Okulitch, A.V. 1979. Fraser River Sheet 92 Geology Map 1386A. G.S.C.
- Wright, R.L., Nagel, J., and McTaggart, K.C. 1982. Alpine ultramafic rocks of southwestern B.C. Can. J. Earth Sci. 19: 1156-1173.

COST STATEMENT, 1987 PROGRAMME

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Personnel:		
Paul Kallock, July 21-27, 31, total 8 days @ \$330/day	\$ 2,640.00	
L.B. Goldsmith, July 20, 1 day @ \$400/d	400.00	
A. Charest, July 20-26, 28, total 8 days @ \$230/day	1,840.00	
M. Beaupre, July 21-26, 28, 29, total 8 days @ \$230/day	1,840.00	
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298 samples cost	3,517.00	3,517.00
= \$11.80/sample		
Report:		
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report materials		1,138.18
	TOTAL	\$ 14,238.46

APPENDIX

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To: ARCTEX ENGINEERING

301 – 1855 BALSAM ST. VANCOUVER, B.C. Vék 3M3

Chemex Labs Ltd.

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PHONE (604) 944-0221

COMMANTS: CC: FAUL KALLOCK CC: ARCTEX - SILVERTON

CERTIFICATE A8719224

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To ; ARCTEX ENGINEERING

CC: ARCTEX - SILVERTON 301 - 1855 BALSAM ST. VANCOUVER, B.C. V6K 3M3 Project : FUNCH BOWL Comments: CC: FAUL KALLOCK CC

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Chemex Labs Ltd.

Analytical Chemists * Geochemists * Redistered Assayers 212 BROOKSBANK AVE , NORTH VANCOUVER, BRITISH COLUMBIA, CANADA V7J-2CI PHONE (604) 944-0221

A8719226 CERTIFICATE

: FUNCH BOWL ARCTEX ENGINEERING : NONE PROJECT P.O. I Samples submitted to our lab in Vancouver, BC. This report was printed on 16-AUG-37.

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To: ARCTEX ENGINEERING

301 - 1855 BALSAM ST. VANCOUVER, B.C. V6K 3M3

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COMMANTS: CC: PAUL KALLOCK CC: ARCTEX - SILVERTON

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ROCK SAMPLE DESCRIPTIONS

(See Certificate of Analysis for Geochemical Values of Each Sample)

- 10+60N 7+00E Located along Punch Bowl Creek, 2.0 m chip sample of bedrock contains up to 10% pyrite as stockwork veinlets in a bleached metasediment (?) or tuff (?).
- 12+25N 6+92E Located along vertical west bank of Punch Bowl Creek, grab sample of 10-15% pyrite in fine-grained silicified metasediment.
- 12+25N 7+00E Located in vertical north bank of Punch Bowl Creek, 0.1 m chip sample across quartz-sphalerite vein, minor galena, strong iron oxide, vein trends N35°W 75°W.
- 3+42S 0+50W 0.4 m chip sample across N35°W 65°S trending fault zone with strong limonite and hematite, clay and occasional quartz veinlet with pyrite and traces of galena; occurs at contact of fine-grained diorite with argillite.
- 3+44S 0+45W Sample of quartz-sulphide float cobble in talus below vein of previous sample. Strongly silicified diorite with abundant quartz, 1% pyrite, 3% fine-grained galena (?), traces chalco-pyrite.
- 3+45S 0+00W Grab sample of several quartz veins up to 3 cm wide, hosted in coarse-grained sandstone and pebble conglomerate. Also contains calcite, goethite and 1% pyrite.

The following four samples are adjacent, continuous chip samples, each 5.0 m in length:

2+78S 0+89W Mostly fine-grained sedimentary rock with strong northwest fractures, central 1.0 m of diorite with minor quartz veinlets.
2+80S 0+94W Sheared and fractured fine-grained sediments, occasional orange-brown stained carbonate vein.
2+82S 0+98W Strong argillic and silicified metasediments with several quartz veinlets and strong limonite.
2+84S 1+02W West half of 5 m chip sample is fine-grained diorite, remainder is variable argillic and siliceous altered fine-grained sandstone.

ROCK SAMPLE DESCRIPTIONS (continued)

- 3+12S 2+30E 0.75 m chip sample across N80°E 80°N trending fault zone with 4 cm clay and 4 cm oxide gossan; remainder is siliceous sandstone with numerous quartz veinlets.
- 3+30S 1+15E 2.0 m chip sample of orange-brown quartz-carbonate altered metasediment, several quartz and massive calcite veins.



Merritt Minerals Inc.

PUNCH BOWL CREEK GRID

Punch Bowl Claim Group EOLOGICAL BRANCH







Medium to coarse-grained diorite, locally porphyritic with feldspar phenocrysts; generally shows moderate chloritic alteration of matics. Occurs as dykes, sills or small plugs.

SESSMENT REPORT

Merritt Minerals Inc.

PUNCH BOWL WEST GRID AREA

Punch Bowl Claim Group

Snass Creek B.C. Similkameen & New Westminster M.D. 92H/6E+7W

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Merritt Minerals Inc.

PUNCH BOWL CREEK GRID

Punch Bowl Claim Group

Snass Creek B.C. Similkameen & New Westminster M.D. 92H/6E+7W

SOIL & ROCK GEOCHEMISTRY P.P.M. ARSENIC





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Merritt Minerals Inc.

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SOIL & ROCK GEOCHEMISTRY GOLD PRB.

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Feen To accompany report by Paul Kallock, Geologist AUGUST 1987 ARCTEX ENGINEERING SERVICES

GEOLOGICAL BRANCH

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PAUL KALLOCK

Merritt Minerals Inc.

Punch Bowl Claim Group

Snass Creek B.C. Similkameen & New Westminster M.D. 92H/6E+7W

GEOLOGICAL BRANCH ASSESSMENT REPORT 16.279

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Merritt Minerals Inc.

PUNCH BOWL CREEK GRID

Punch Bowl Claim Group

Snass Creek B.C. Similkameen & New Westminster M.D. 92H/6E+7W

