

840120

SUMMARY REPORT  
on the  
JIM AND SLATE CLAIMS  
MANSON CREEK, BRITISH COLUMBIA

Omenica Mining Division

N.T.S. 93N/9 & 10

OWNER: AZIMUTH GEOLOGICAL INC.

**SUMMARY REPORT**  
**on the**  
**JIM AND SLATE CLAIMS**  
**MANSON CREEK, BRITISH COLUMBIA**

**Omenica Mining Division**

**N.T.S. 93N/9 & 10**

**OWNER: AZIMUTH GEOLOGICAL INC.**

## SUMMARY

Precious metal mineralization in the Manson Creek area is spatially associated with the Manson Creek Fault zone; a 65 km long, up to 1000m wide, complex series of anastomosing splays hosting carbonatized and silicified ultramafics, volcanics and sediments. Numerous gold bearing quartz veins and quartz-carbonate alteration zones are developed along or occur marginal to the fault.

The Jim and Slate claims are located along the Manson Creek Fault and lie immediately northwest of the town of Manson Creek. Several precious metal occurrences have been documented within the boundaries of the properties.

The Jim claims cover the Farrell showing, a high grade quartz vein system that has returned values to 0.551 oz/t Au over a 3.0m width. Gold soil anomalies occur for over 400m along regional strike to the southeast. A newly discovered adit, 1.1 km southeast of the Farrell trenches, has no recorded sampling.

The Slate claims lie along a possible strike extension of the Fairview showing, currently held by Chevron Minerals Ltd. Grab samples from the Fairview have returned up to 0.524 oz/t Au, from a 1.0m wide quartz vein/shear system. The zone may extend for up to 850m along strike to the northwest. The Discovery Bar occurrence, located near the southern boundary of the Slate claims, hosts galena, sphalerite and tetrahedrite bearing quartz stringers developed within a 3.65m wide shear.

Many of the showings in the Manson Creek area have undergone only precursory examinations. Occurrences that have been examined in more detail have never been fully evaluated. Potential exists for the discovery of additional high grade quartz systems and extensive, lower grade, larger tonnage style precious metal bearing alteration zones.

The area hosts numerous precious metal mineral occurrences. Known showings require further detailed exploration surveys and regional studies should be conducted in order to evaluate the potential of the entire Manson Creek Fault zone.

## INTRODUCTION

The principals of Azimuth Geological hold 106 mineral claims in the Manson Creek area of central British Columbia. These are divided into two claim groups; the Jim claims (64 units) and the Slate claims (42 units).

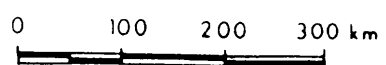
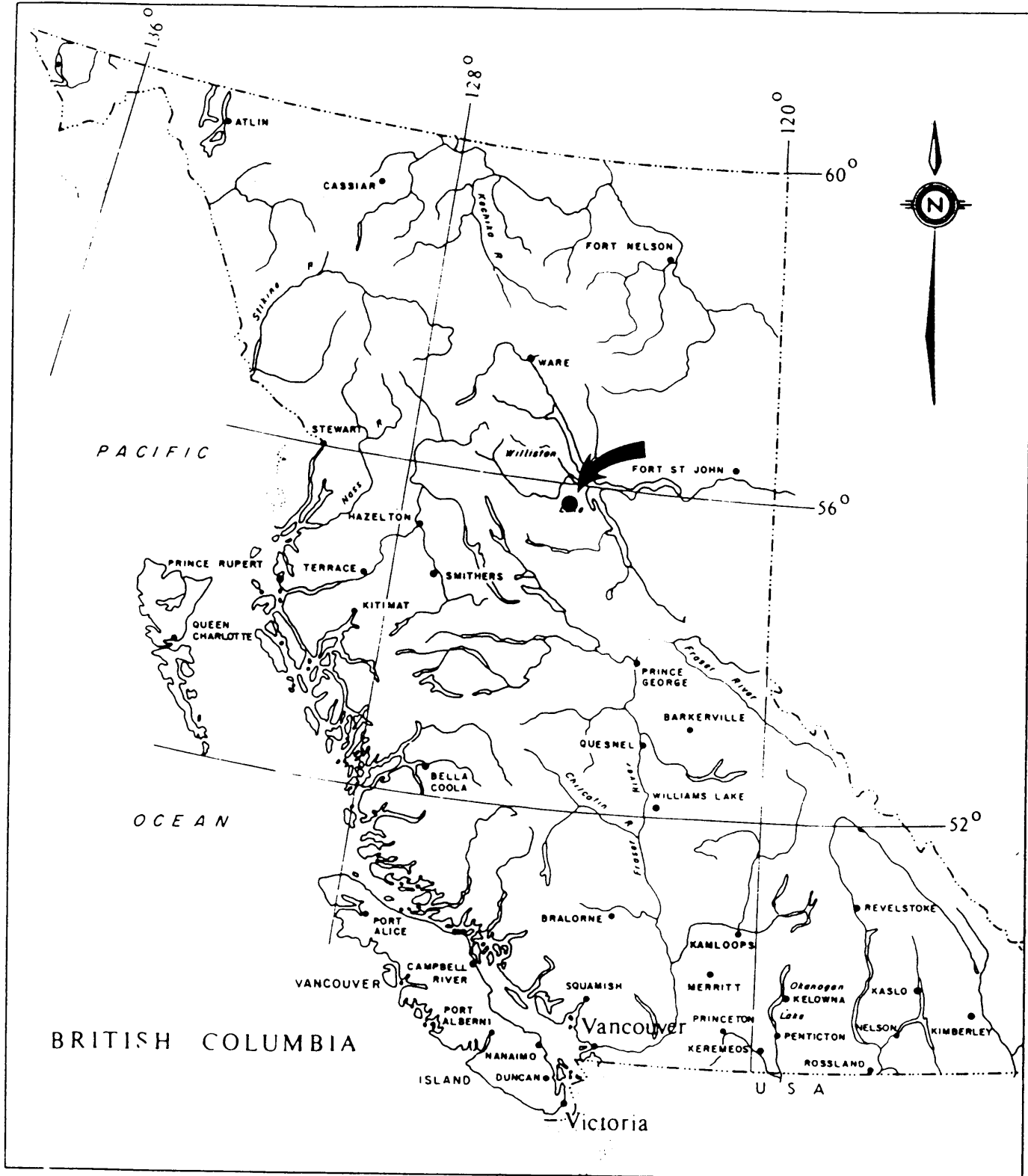
Both claim groups lie along the Manson Creek Fault. This fault trends northwesterly, is steep dipping and consists of a complicated series of anastomosing splays, characterized by carbonatized and silicified ultramafics, mafic volcanics and deep water sediments. Movement is interpreted to be strike slip and the width varies from a few hundred metres to over 1,000 metres.

The fault is host to numerous precious metal vein occurrences, two of which lie within (Farrell showing) or immediately adjacent to (Fairview showing) the Jim and Slate claim groups. Quartz stockwork mineralization, hosted by extensive silica-carbonate alteration, occurs immediately west of the Slate claims (QCM claims - Central Zone). A prolonged history of placer mining has also been documented along all major creeks draining the Manson Creek Fault.

## PROPERTY, LOCATION AND ACCESS

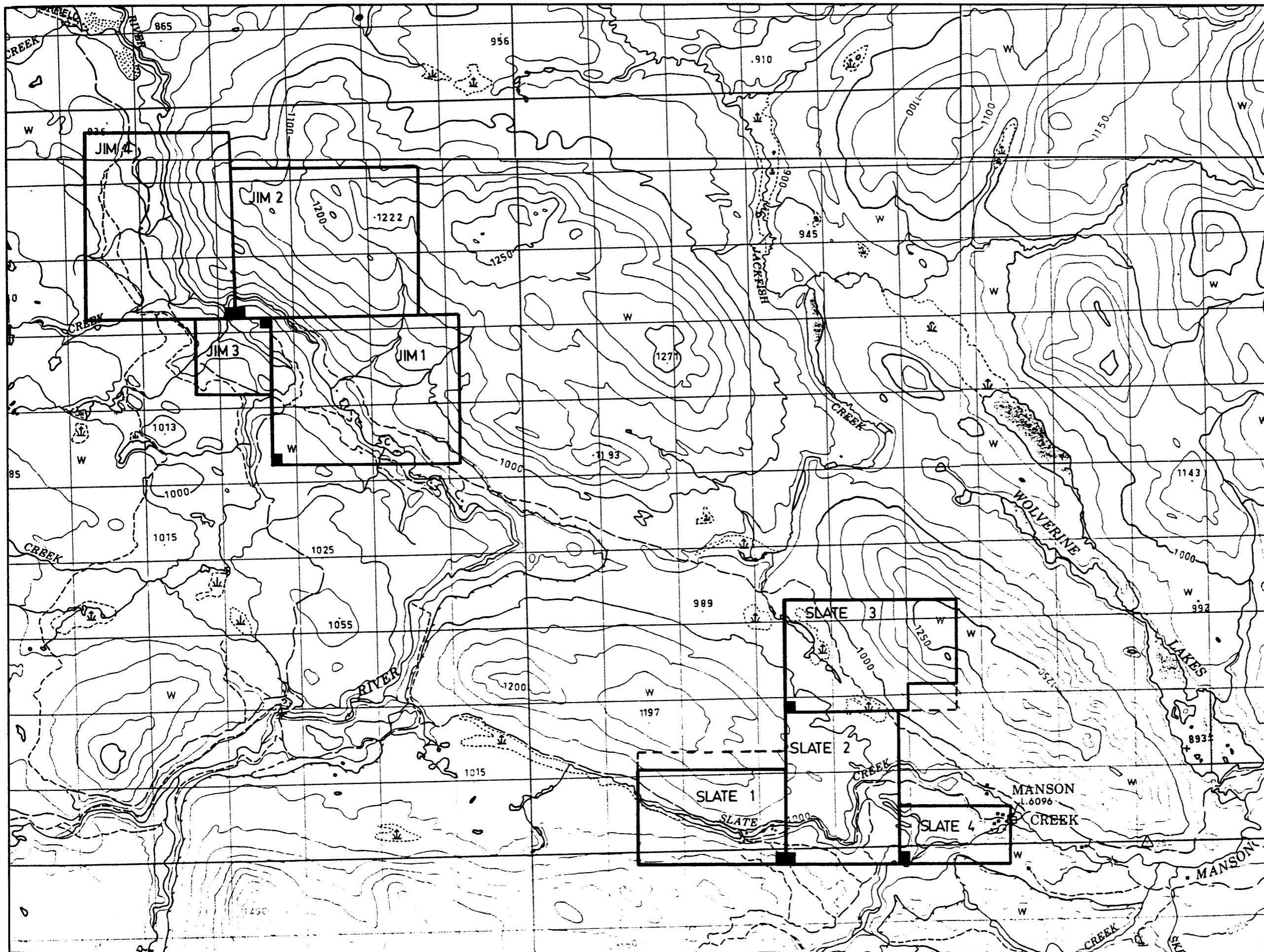
Two claim groups, the Slate claims and the Jim claims, are located along Slate Creek and Germansen River respectively. The Slate claims lie immediately northwest of the town of Manson Creek (Figure 1) and consist of 42 contiguous units (Figure 2). The Jim claims are centered approximately 12 km northwest of Manson Creek and comprise 64 contiguous units (Figure 2). The principals of Azimuth Geological Incorporated are the registered owners.

| Claim Name | Units | Record # | Expiry        |
|------------|-------|----------|---------------|
| Slate 1    | 12    | 8575     | July 17, 1989 |
| Slate 2    | 12    | 8576     | July 17, 1989 |
| Slate 3    | 15    | 8577     | July 17, 1989 |
| Slate 4    | 3     | 8678     | July 17, 1989 |
| Jim 1      | 20    | 8578     | July 17, 1989 |
| Jim 2      | 20    | 8579     | July 17, 1989 |
| Jim 3      | 4     | 9907     | Oct. 29, 1989 |
| Jim 4      | 20    | 9908     | Oct. 30, 1989 |



LOCATION MAP

|              |                    |     |               |
|--------------|--------------------|-----|---------------|
| DATE<br>1989 | SCALE<br>1:750,000 | NTS | DRWG NO.<br>1 |
|--------------|--------------------|-----|---------------|



CLAIM MAP

Figure 2

Manson Creek lies approximately 230 km north-northwest of Prince George, B.C. Access to Manson Creek is best facilitated by a 225 km stretch of 2 wheel drive gravel road, north from Fort St. James. Alternate road access is provided by a network of well maintained logging roads, which join the Hart Highway (B.C. Highway No. 97) approximately 160 km north of Prince George and 30 km south of MacKenzie.

Float planes fly into the Manson Lakes and fixed wings service Germansen Landing, 27 km to the northwest of Manson Creek. Room, board and provisions can be obtained in both Manson Creek and Germansen Landing.

## **HISTORY**

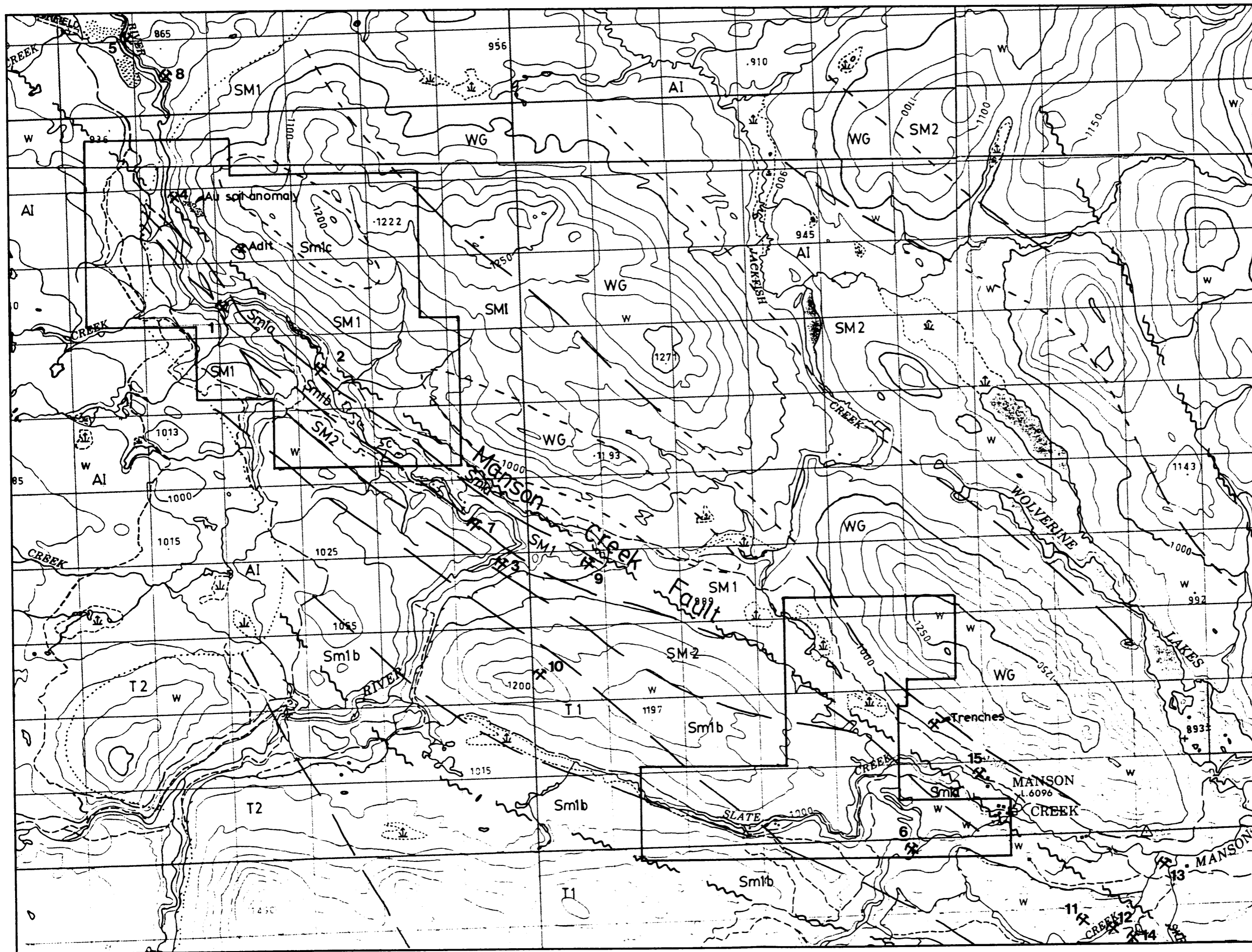
Placer gold was discovered on Germansen River, Manson River and their tributaries in 1870-71. Production was almost continuous from Germansen River and some 24,138 ounces of gold were recovered until 1949. Total recorded production from Slate Creek, Manson River and several tributary streams was an additional 12,815 ounces of gold.

Intensive prospecting within the Manson Creek - Germansen River camp led to the discovery of a number of lode gold - silver occurrences. Several of these showings, including the Farrell, Ah-Hoo Creek, Motherlode (Flagstaff), QCM, Discovery Bar, Sunset and Fairview, are distributed along or are proximal to the Manson Creek Fault (Figure 3).

Limited trenching and underground development was carried out on the Farrell showing (currently on the Jim 4 mineral claim - Figure 3) prior to 1949 (Armstrong and Thurber, 1949). A 0.7m sample assayed 0.8 oz/t Au and 1.6 oz/t Ag.

The Fairview showing, currently held by Chevron Minerals Ltd. (between the Slate 2, Slate 3 and Slate 4 mineral claims), was worked sporadically during the 1900's. Numerous overgrown trenches and pits can be found on the property (B.C.D.M. Assessment Report 16,602).

In 1972, the Ida Claims (currently the QCM Claims of Manson Creek Resources) were worked by Sullivan and Rogers of Toronto. Soil and rock geochemistry revealed significant gold anomalies (B.C.D.M. Assessment Report 4245). This was followed by IP and resistivity surveys, (B.C.D.M. Assessment Report 4246) before the ground was allowed to lapse. The area was re-staked in 1979 by Vital Mines of B.C., but the ground was again dropped.



**Quaternary**

- A1** Alluvium

**Upper Triassic - Lower Jurassic Takla Group**

- T2** Volcanic conglomerate and sandstones, lesser flows
- T3** Argillite, lesser volcanic sediments

**Upper Paleozoic - Triassic Slide Mountain Group**

- SM3** Pillow basalts, volcanic breccia, chert
- SM2** Siltstone, argillite, chert, minor flows
- SM1** Graphitic argillite, chert, limestone, serpentinite, listwanite, felsic tuff

- Smlc** Felsic tuff
- Smlb** Phyllite, argillite, lesser limestone, chert
- Smla** Serpentinite, talc-carbonate schist, listwanite

**Upper Paleozoic - Triassic**

- WG** Foliated hornblende, pyroxene gabbro

~~~~~ fault  
 - - - - - contact  
 X3 mineral occurrence

0.5 0 10 20  
Kilometres

## Geology & Mineral Occurrences

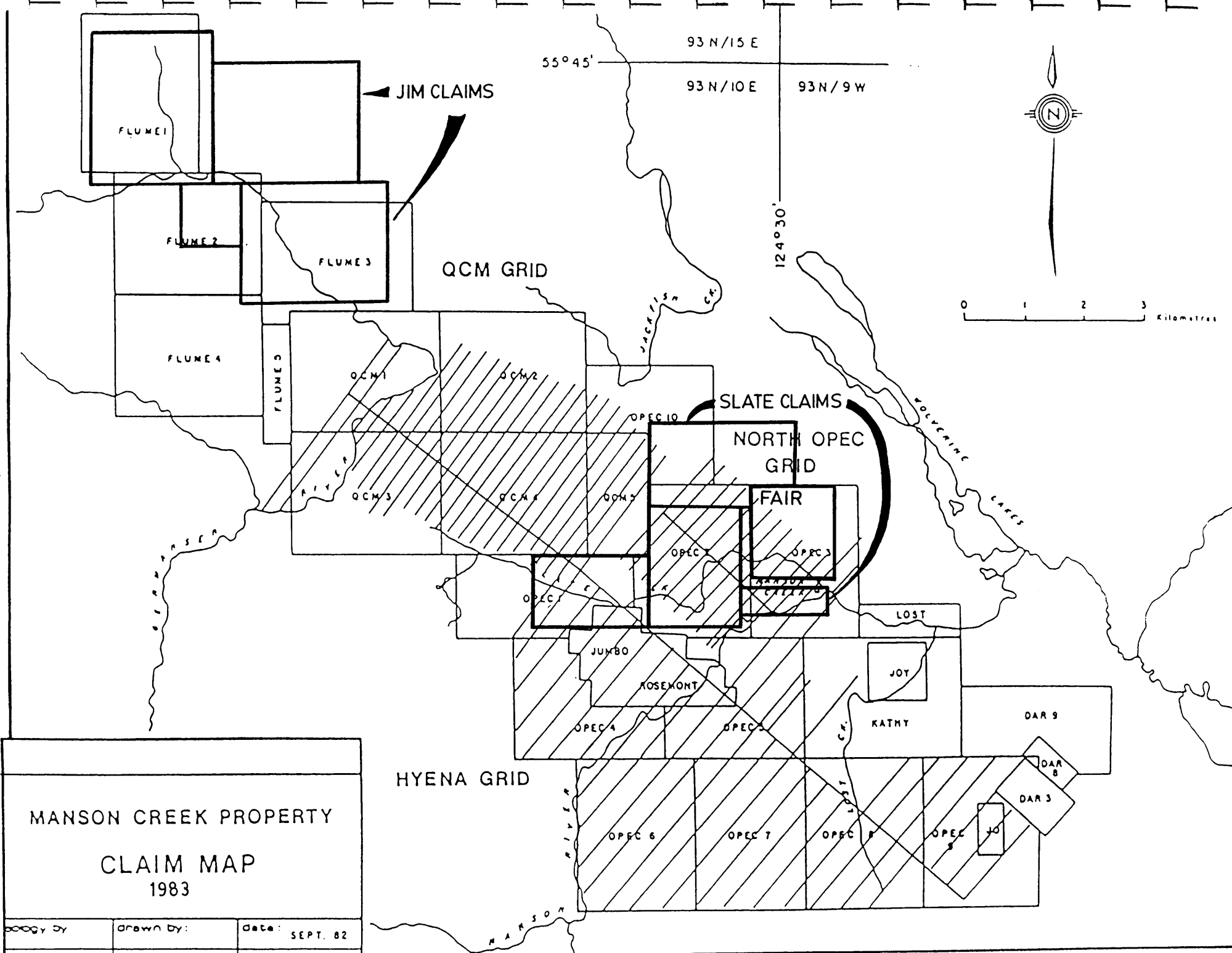
Figure 3



Golden Rule Resources Ltd. of Calgary operated the Opec (the Slate 1 to 4 claims cover the Opec 1, 2, 3 and 10) and Flume (the Jim 1 to 4 claims cover the Flume 1, 2, 3, 6, and 7) claims (Figure 4) in 1980. Geological, geochemical, magnetometer and VLF surveys were carried out along a 28 km grid on the Opec claims (B.C.D.M. Assessment Report 8956). Several polymetallic geochemical anomalies with coincident geophysical signatures were outlined. Grab samples collected from the Farrell and Fairview showing confirmed previous values (0.345 oz/t Au and 0.550 oz/t Au from the Farrell and 0.098 oz/t Au from the Fairview). Approximately 40 line km of grid controlled geological mapping, geochemical sampling and ground VLF/EM and magnetic geophysical surveying was carried out on the Flume claims (B.C.D.M. Assessment Report 8957). The grid was situated to test suspected major structures and quartz-carbonate alteration zones along the Germansen River.

In 1981, Golden Rule Resources Ltd. conducted geological, geochemical, magnetometer and VLF/EM surveys (B.C.D.M. Assessment Report 9944) over 31.3 km of grid on the QCM 1 to 5 mineral claims (located along the Manson Creek Fault between the Jim and Slate claims - see Figure 4). Two strong (to 2850 ppb Au) northwest trending soil gold anomalies 900m apart, each up to 3000m long and 50m to 300m wide, were found to be associated with silica-carbonate alteration zones. One anomaly contained an area of anomalous gold-in-rock values from 100 ppb Au to 3500 ppb Au. Trench sampling of the old Flagstaff-Motherlode occurrence returned values to 0.054 oz/t Au and 8.6 oz/t Ag. Outcrops along the north slope of Germansen River combined with VLF/EM suggest a strike length of approximately 400m for the Flagstaff-Motherlode zone.

Anaconda Canada Exploration Ltd. optioned the QCM and Opec claims from Golden Rule Resources Ltd. in 1982. In that year a total of 78.2 line km of grid were added to the existing grids on both claim groups (see Figure 4) and geological mapping, soil and rock sampling, VLF/EM and magnetometer surveys and trenching were carried out (B.C.D.M. Assessment Report 10746). Two extensive zones of intense ankerite-sericite-albite-quartz+/-pyrite alteration host anomalous gold values in rocks (up to 1200 ppb Au - Flag zone and up to 4200 ppb Au - Central zone). No soil anomaly was found to be associated with the Flag zone, but geology and IP suggest the alteration extends for up to 3,000m to the southeast. In 1983, 32 percussion (2424m), 3 diamond drill (422m) holes (Anaconda unpublished company report) and 4 reverse circulation (414m) holes (B.C.D.M. Assessment Report 11627) tested the Flag and Central zones. Five percussion holes across the Flag zone returned anomalous gold values between 50 and 167 ppb Au. The Central zone (130m by 300m) returned up to 0.169 oz/t Au over 1.5m in percussion holes, up to 0.070 oz/t Au over 3.0m in reverse circulation and up to 0.247 oz/t Au over 0.5m in diamond drilling. One 76.5m percussion drill interval averaged



**MANSON CREEK PROPERTY**  
**CLAIM MAP**  
 1983

|                |               |                     |
|----------------|---------------|---------------------|
| copy by        | drawn by:     | date: SEPT. 82      |
| scale AS SHOWN | note AS SHOWN | drawing no. 4<br>of |

0.031 oz/t Au. The zone is open to the southeast along a soil geochemical anomaly. Anaconda favoured the model of an economic bulk tonnage, low grade deposit. Regional tungsten anomalies were outlined in the southern portion of the Opec claims.

The Flume claims were re-examined in 1983 by Manson Creek Resources Ltd. (B.C.D.M. Assessment Report 12,362). The program consisted of geological mapping, geochemical sampling and geophysical surveys over the Farrell showing, the Ah-Hoo Occurrence and over selected gold geochemical anomalies outlined in previous surveys. Several gold and silver soil geochemical anomalies were outlined in an area 400m by 250m and further investigations were recommended. Limited trenching and sampling around the Farrell adit returned up to 0.511 oz/t Au over 3.0m. Altered wallrock adjacent to the vein returned 0.184 oz/t Au over 1.0m.

A limited diamond drilling program (304.8m) was conducted in 1984 in order to evaluate the continuity and extent of the Farrell showing (B.C.D.M. Assessment 12,130). Three holes were drilled proximal to the showing and one hole was located along strike to the north. Results were discouraging and the interpretation was that the Farrell showing lacked vertical and lateral extent. The drill spacing and locations may not however, have been sufficient in order to adequately test this structure. Continued work on the remaining untested soil anomalies was recommended.

Chevron Minerals Ltd. staked the Fair claim, surrounding the Fairview showing, in 1987. A limited program consisting of geological mapping as well as soil and rock geochemical sampling was carried out (B.C.D.M. Assessment Report 16,602). A grab sample from the vein returned 0.524 oz/t Au. Exposures in the Fairview showing combined with old trenches and soil gold anomalies along the strike of the main quartz vein suggest the vein system has a possible extension of up to 850m.

## **GEOLOGY**

The Manson Creek area lies within the allocthonous Intermontane Belt (Ferri and Melville, 1988 and 1989) consisting of Late Triassic to Early Jurassic Takla Group, Middle Paleozoic to Early Triassic Slide Mountain Group and possible Middle to Late Paleozoic Harper Ranch Group. These are intruded by the Early Cretaceous Germansen batholith and the Triassic to Cretaceous Hogem batholith.

The Harper Ranch Group comprises carbonate, epiclastics and mafic volcanics overlain by Slide Mountain Group deep water sedimentary, volcanic and igneous rocks. The Takla Group is an arc assemblage of subalkaline to cal-alkaline pyroclastic and epiclastic rocks with lesser mafic flows.

The most prominent structure in the area is the 65 kilometre long Manson Creek fault zone, which separates the Takla Group in the southwest from the Slide Mountain Group to the northeast. The fault trends northwesterly and varies from a few hundred meters to over a kilometre in width. Lenses of altered ultramafics occur along the zone and are clearly delineated by aeromagnetics. Strike slip motion is inferred by stretched fault-breccia clasts and phyllite clasts, slickensides and fibrous crystal growths. The sense and amount of motion has not been deduced. The Slate Creek lineament is probably a splay off the Manson fault.

### **MINERALIZATION**

Most mineral prospects in the area are spatially distributed along the Manson Creek fault (see Figure 3 and Table 1). Exceptions to this include a few copper showings in the Takla volcanics (Ferri and Melville, 1989) and molybdenite, chalcopyrite and scheelite occurrences within and marginal to the Germansen batholith.

Precious metals have been noted in three modes of occurrence. These include:

- 1) Sulphide bearing quartz-carbonate veins along or within the Manson Creek fault zone.
- 2) Disseminated mineralization in altered rocks of the Takla and Slide Mountain groups.
- 3) Quartz-carbonate alteration zones, including listwanite, developed along the fault.

Figure 3 illustrates the strong spatial association between precious metal showings and the Manson Creek fault. Two gold (Farrell and Ah-Hoo) and one asbestos showings occur within the boundaries of the Jim claims and one gold showing (Discovery Bar) is located on the Slate claims. Several other prospects (Fairview, Sunset, Discovery Bar, Kathy, Lost Creek and other unnamed showings) occur immediately along strike (northwest-southeast) from the Jim and Slate claims. These are described briefly in Table 1.

The Motherlode (Flagstaff) and QCM showings, formerly worked by Anaconda Canada Exploration Ltd., occur to the southwest of the Manson Creek fault. Gold is associated with disseminated pyrite, quartz vein stockwork, quartz veining or shears within silica-carbonate altered Takla volcanoclastics and/or Slide Mountain sediments. These alteration zones trend northwesterly, sub-parallel to the Manson Creek Fault, and may be associated with subsidiary splays off the main fault system.

Table 1  
Mineral Occurrences

| Map | Type                                       | MINFILE Number | Name                   | Economic Minerals                                                                      | Geological Description                                                                                                                                                                                                                  |
|-----|--------------------------------------------|----------------|------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Asbestos                                   | 093N 115       | Germansen River        | Chrysotile                                                                             | Asbestos is found in varying amounts in a serpentinized ultramafic body near and within the Manson fault zone.                                                                                                                          |
| 2   | Ultramafic-hosted base and precious metals | 093N 116       | Ah-Hoo Creek           | Pentlandite, platinum, gold                                                            | Mineralization disseminated in pyrrhotite-bearing serpentinized ultramafic bodies within and near the Manson fault zone.                                                                                                                |
| 3   | "                                          | 093N 024       | Motherlode (Flagstaff) | Azurite, malachite, gold, tetrahedrite, chalcopyrite                                   | Mineralization occurs in a shear related to the Manson fault separating a quartz-carbonate-altered andesite(?) and a pyritiferous argillite(?) of the Slide Mountain Group.                                                             |
| 4   | "                                          | 093N 025       | Farrell                | Tetrahedrite, chalcopyrite, gold                                                       | Mineralization occurs in three quartz veins in quartz-carbonate-altered and sheared Slide Mountain rock (andesite?) within the Manson fault zone.                                                                                       |
| 5   | Vein-hosted base and precious metals       | 093N 026       | Sunset                 | Chalcopyrite, gold, silver                                                             | A pyrite and chalcopyrite-bearing quartz vein approximately 3 metres wide follows the plane of schistosity in quartz-rich schists near the Manson fault zone.                                                                           |
| 6   | "                                          | 093N 063       | Discovery Bar          | Galena, sphalerite, tetrahedrite                                                       | Numerous quartz stringers are sparsely mineralized in a 3.65-metre shear zone separating quartz-carbonate-altered schists and black phyllites of the Slide Mountain Group.                                                              |
| 7   | "                                          | 093N 130       | Not named              | Tetrahedrite, gold                                                                     | "                                                                                                                                                                                                                                       |
| 8   | "                                          | 093N 144       | Not named              | Chalcopyrite, gold, galena, tetrahedrite                                               | Numerous folded and semi-continuous pyritiferous quartz veins containing varying amounts of mineralization hosted by a well-foliated and pyritiferous quartz-rich schist.                                                               |
| 9   | "                                          | 093N 145       | Not named              | Chalcopyrite, tetrahedrite                                                             | Mineralization occurs in several quartz veins in Slide Mountain volcanics and sediments.                                                                                                                                                |
| 10  | Disseminated/stockwork precious metals     | 093N 198       | QCM Claims             | Gold                                                                                   | Gold occurs disseminated or in quartz vein stockwork within quartz-carbonate-altered Takla volcanoclastics near the Manson fault zone.                                                                                                  |
| 11  | Vein-hosted molybdenum and tungsten        | 93N-078        | Tait Tungsten          | Scheelite                                                                              | Scheelite is found in quartz stringers parallel to axial plane cleavage of folds within the Manson fault zone.                                                                                                                          |
| 12  | Vein-hosted precious and base metals       | 93N-030        | Kathy (Joy, Troy)      | Galena, tetrahedrite, sphalerite ± scheelite, bornite, chalcopyrite, gold, molybdenite | Mineralization occurs in quartz veins, fault breccia zones and hydrothermally altered rocks related to the Manson fault zone. Veins are hosted in limestones, argillites, ultramafics and chlorite schists of the Slide Mountain Group. |
| 13  | (Pb ± Ag, Au)                              | 93N-117        | Lost Creek             | Galena ± silver, tetrahedrite, gold                                                    | Sulphide-bearing quartz veins in limestones, argillites, greenstones and cherts of the Slide Mountain Group within the Manson fault zone.                                                                                               |
| 14  | "                                          | 93N-136        | Not named              | "                                                                                      | "                                                                                                                                                                                                                                       |
| 15  | (Au, Ag, Cu, W)                            | 93N-023        | Fairview               | Tetrahedrite, gold, azurite, malachite, chalcopyrite (?)                               | A 0.5-metre-wide quartz vein is found in a shear zone bounded by quartz-carbonate-altered ultramafics and gabbros. It is traced for approximately 50 metres.                                                                            |

Significant gold concentrations have been documented at the Farrell (Jim claims) and Fairview (on strike from the Slate claims) showings. These vein type occurrences have undergone several examinations and are summarized below.

The Farrell showing consists of a northerly trending quartz-carbonate vein, varying in width from 0.5 to 5.0m. Associated gold soil anomalies with values greater than 160 ppb Au extend for 400m to the southeast, along regional strike from the Farrell trench. Mineralogy of the showing comprises tetrahedrite, chalcopyrite, azurite, malachite and native gold. The host rocks are talc schist and mafic volcanics, located 10m - 20m north of a serpentinized ultramafic. Trench sampling (B.C.D.M. Assessment Report 12,362) returned the following:

#### Across the vein

| Sample width metres | oz/t Au | Avg. oz/t Au | oz/t Ag |
|---------------------|---------|--------------|---------|
| 0 - 1               | 0.046   | 0.511        | 0.44    |
| 1 - 2               | 0.038   |              | 0.38    |
| 2 - 3               | 0.950   |              | 0.54    |
| 3 - 4               | 0.274   |              | 0.84    |
| 4 - 5               | 0.308   |              | 0.22    |

#### Along the vein

| Sample width metres | oz/t Au | Avg. oz/t Au | oz/t Ag |
|---------------------|---------|--------------|---------|
| 0 - 1               | 0.596   | 0.459        | 1.02    |
| 1 - 2               | 0.322   |              | 0.62    |
| 2 - 3               | 0.028   |              | 0.08    |

Eight 1.0m wide samples collected in 1984 (B.C.D.M. Assessment Report 12,130 and Ferri and Melville, 1989) returned values from 0.04 oz/t Au to 1.01 oz/t Au, confirming earlier sampling. A limited diamond drill program (304.8m in 4 holes) had discouraging results and the Farrell showing was interpreted to lack vertical and/or lateral continuity (B.C.D.M. Assessment Report 12,130). The drill spacing and locations may not however, have been sufficient in order to adequately test this structure. This would have been particularly important in the case of a plunge controlled body (see Mineralization Model section). Additional soil gold anomalies have yet to be tested and a recently discovered adit, located 1.1 km southeast of the Farrell trench (pers. comm. F. Ferri, 1988), has no record of being sampled. The potential of this showing has not been exhausted.

The Fairview showing, located to the south and east of the Slate claims, was worked by Chevron in 1987 (B.C.D.M. Assessment Report 16,602). A 1.0m wide, northwest trending, quartz vein with tetrahedrite, chalcopyrite and pyrite is exposed in trenches for 50m along strike. The vein occupies a silicified and slightly carbonatized fault zone separating gabbros to the northeast from ultramafics to the southwest. One grab sample from a trench returned 0.524 oz/t Au. Armstrong and Thurber (1949) reported values to 0.28 oz/t Au and 22.3 oz/t Ag. Chevron concluded that a possible extension of the vein was located in old trenches, 850m along strike to the northwest of the main showing, and recommended further evaluation of the property. The Slate claims lie immediately northwest of the strike continuity of this structure.

Quartz stockwork mineralization has been documented on the QCM claims, worked primarily by Anaconda Canada Exploration Ltd. in 1982 and 1983 (B.C.D.M. Assessment Reports 10746 and 11627). Slide Mountain group sediments, volcanics and ultramafics and Takla Group epiclastic rocks have been affected by quartz-carbonate alteration containing the assemblage albite-muscovite-quartz-ankerite-pyrite. Soil geochemistry located two anomalous gold zones, each approximately 3000m long by 50m to 300m wide, with gold values up to 2950 ppb Au (B.C.D.M. Assessment Report 8957 and Ferri and Melville, 1989). Anaconda delineated two zones, the Flag and Central. The larger Central zone is 200m by 300m and is open to the southeast, with gold in soils ranging from less than 10 ppb Au to 4200 ppb Au. Rocks around the Central zone returned up to 1800 ppb Au and 3700 ppb Au from two consecutive 1m chip trench samples (B.C.D.M. Assessment Report 10746). Later reverse circulation drilling (B.C.D.M. Assessment Report 11627) resulted in all four holes penetrating quartz-carbonate altered Takla Group volcanic sandstones with accompanying quartz veining. One 5m section averaged 0.06 oz/t Au, with a 1.0m interval of 0.10 oz/t Au. A percussion drill hole intersection of 76.5m averaged 0.031 oz/t Au, suggesting the potential for economic bulk tonnage, low grade gold mineralization (B.C.D.M. Assessment Report 10746 and Anaconda unpublished company report). Gold values appear to coincide with pyrite concentrations within the country rock and with quartz veinlets, suggesting stockwork mineralization (Ferri and Melville, 1989).

Quartz-carbonate altered basic volcanics and ultramafics (listwanites) are developed along the Manson Creek Fault and its associated splays. Listwanite alteration is characterized by disseminated and/or porphyroblastic ankerite and pyrite with accompanying sericitization and silicification of the host rocks. An example of the progressive alteration of mafic volcanics is exposed approximately 3 km north of the confluence of the South Germansen and Germansen rivers. Here chloritized mafic volcanics are progressively altered to mariposite-pyrite-muscovite-quartz-carbonate schist over 20m. The carbonate rock is strongly foliated. Although no significant mineralization has been

reported from these alteration zones along the Manson Creek Fault, Armstrong and Thurber (1949) reported values to 0.01 oz/t Au and 0.69 oz/t Ag. In addition, precious metals are found in sulphide bearing quartz-carbonate veins associated with listwanites along the fault zone (Ferri and Melville, 1989).

## **MINERALIZATION MODEL**

The dominant structural control on the mineralization is the Manson Creek fault zone. This fault is comprised of a complex series of anastomosing splays within a 65 km long, 1000m wide system. Quartz-carbonate alteration and associated quartz veins are common and listwanites are developed marginal to serpentized ultramafics.

Movement along the Manson Creek Fault is interpreted as strike slip, but the movement sense and amount of displacement has not been determined. The development of north trending tensional quartz systems, such as that exposed at the Farrell showing, suggests a dextral movement sense. In this structural setting, the dominant orientation to tensional features would be northerly trending veins of limited lateral extent, with a steeply plunging elongation direction of unknown dimensions. Consequently, the drill program conducted at the Farrell Showing (B.C.D.M. Assessment Report 12,130) appears to have been poorly designed to test a structure of this orientation. Further work is required to adequately test this high grade structure and other similar structures potentially developed along the fault zone.

Extensive alteration zones with stockwork mineralization occur immediately southwest of the main fault (QCM prospect). They may however, be associated with splays within the 1000m wide system. Potential exists here for large tonnage, lower grade mineralization, but high grade tensional quartz veins may also be developed within these zones.

Quartz-carbonate alteration zones and listwanites are associated with quartz veining along the length of the Manson Creek Fault. Several of these have been documented to host gold values (see Table 1 and Figure 3).

In terms of alteration and structural style, gold occurrences in the Manson Creek area display similarities to mesothermal Archean style vein systems. Precious metal targets include the fault itself, tensional quartz veins developed along the fault (i.e. Farrell and Fairview), fault splays associated with quartz-carbonate alteration and intersecting structures (i.e. Slate Creek lineament and the Manson Creek Fault, in the vicinity of the Slate claims).



## CONCLUSIONS AND RECOMMENDATIONS

Lode gold mineralization has been documented in three modes of occurrence in the Manson Creek area. These include high grade quartz tensional veins, quartz stockwork hosted by extensive areas of quartz-carbonate alteration and quartz-carbonate alteration zones and listwanites developed along the Manson Creek Fault. All are spatially related to the Manson Creek Fault and its splays. The strike slip fault zone has been traced for over 65 km along strike and varies in width from a few hundred meters to over a kilometre.

Two significant high grade veins lie within and adjacent to the Jim/Slate claims. The Farrell prospect has returned 0.511 oz/t over a width of 3.0m from a north trending quartz vein. Diamond drilling along this structure resulted in discouraging results, but the drill program may have been improperly designed for steeply plunging bodies, which would normally be developed in tensional environments associated with strike slip faulting. The Fairview showing held by Chevron Minerals Ltd. hosts a northwest trending vein system, traceable for 850m towards the Slate claim boundary. Grab samples of chalcopyrite, pyrite and native gold bearing quartz veins returned up to 0.524 oz/t Au.

Quartz stockwork zones (QCM claims) have illustrated potential for bulk tonnage, low grade mineralization and may play host to higher grade quartz vein systems.

Quartz-carbonate alteration zones and listwanites are developed along the Manson Creek fault and have documented quartz vein associations. Several of these returned anomalous gold values.

Numerous precious metal targets exist along the Manson Creek Fault. Most of these have undergone only precursory examinations and those that have received more detailed evaluations have not been fully tested. The Jim and Slate claims lie along the fault and host one of the more significant high grade quartz vein showings in the area (Farrell showing). Potential also exists for more extensive, lower grade alteration related mineralization.

Further work is highly recommended on the Jim/Slate claims. In addition, the entire area should be re-evaluated in terms of a more regional oriented study.

## References

- Armstrong, J.E. and Thurber, J.B., 1945, Manson Creek Map-Area, British Columbia, G.S.C. Paper 45-9.
- Ferri, F. and Melville, D.M., 1988, Manson Creek Mapping Project, B.C.D.M. Geological Fieldwork, 1987, Paper 1988-1, pp 169-180.
- Ferri, F. and Melville, D.M., 1989, Geology of the Germansen Landing Area, British Columbia, B.C.D.M. Geological Fieldwork, 1988, Paper 1989-1, pp 209-220.
- B.C.D.M. Assessment Reports: 4245, 4246, 8956, 8957, 9944, 10746, 11627, 12130, 12362, 16602.