

87-373-16135
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Report of Geological Survey on the
RATS Claim Group

Similkameen Mining Division
British Columbia
NTS 92H/9W
49° 33.7' N, 120° 27.2' W

FILMED

Operator/Owner: L. Nyman

for
Count Fleet Explorations Ltd.

12 November 1986

by
R. M. St. Louis, M. Sc.
259 Skyline Ave.
Tooele, Utah 84074

GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,135

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1. INTRODUCTION

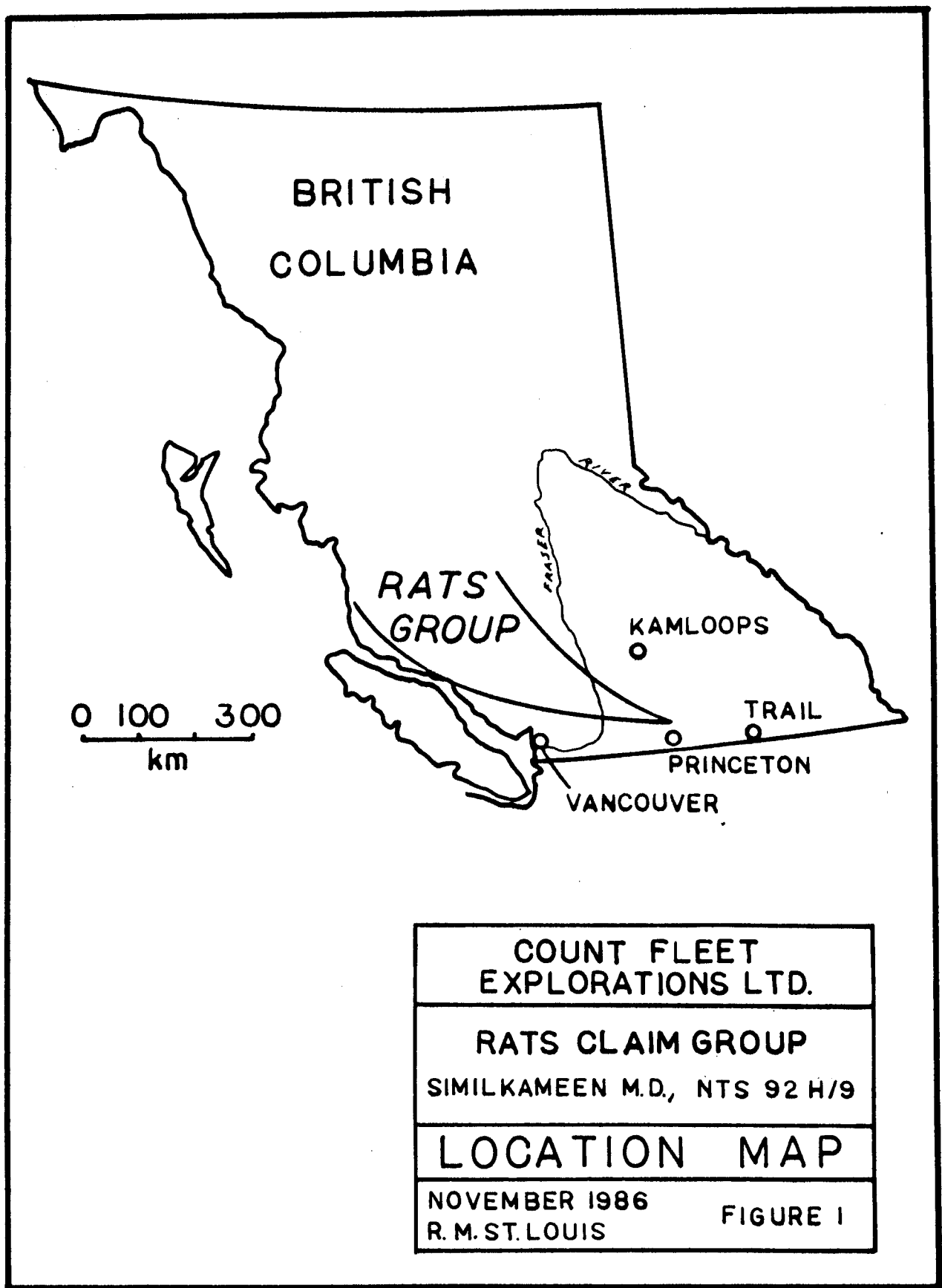
E. E. North of Count Fleet Explorations Ltd. requested the writer to geologically map, sample, and evaluate the RATS claim group. The writer and one assistant were on the property August 5, 7, 8, 9, and 10, 1986, with L. Nyman as guide on August 5, 7, 8, and 9, 1986.

1.1 GEOGRAPHY AND LOCATION

The property is located approximately 12 km north of Princeton, B. C., in the vicinity of Jura. The claims are situated on the ridge that separates the Hayes Creek and Summers Creek valleys, on the western flank of the Okanagan Range. Christian Creek bisects the property, flowing in a fairly narrow, steep walled valley over much of the claim area. Topographic relief is in the order of 1000 feet (300 m), with the northern half of the claims on a gentle hill, the rest on a gently sloping plain. Much of the area is grassy ranchland, but the northern half of the group is in pine and aspen forest with scattered grassy patches. Climate is dry, with a field season that typically extends from late May through early October. Outcrops are scarce except along road cuts and in old trenches.

1.2 ACCESS

The claim area is reached by the paved Princeton-Summerland road, and access to the claims proper via a network of ranch roads and Canadian Pacific Railroad.



1.3 PROPERTY DEFINITION

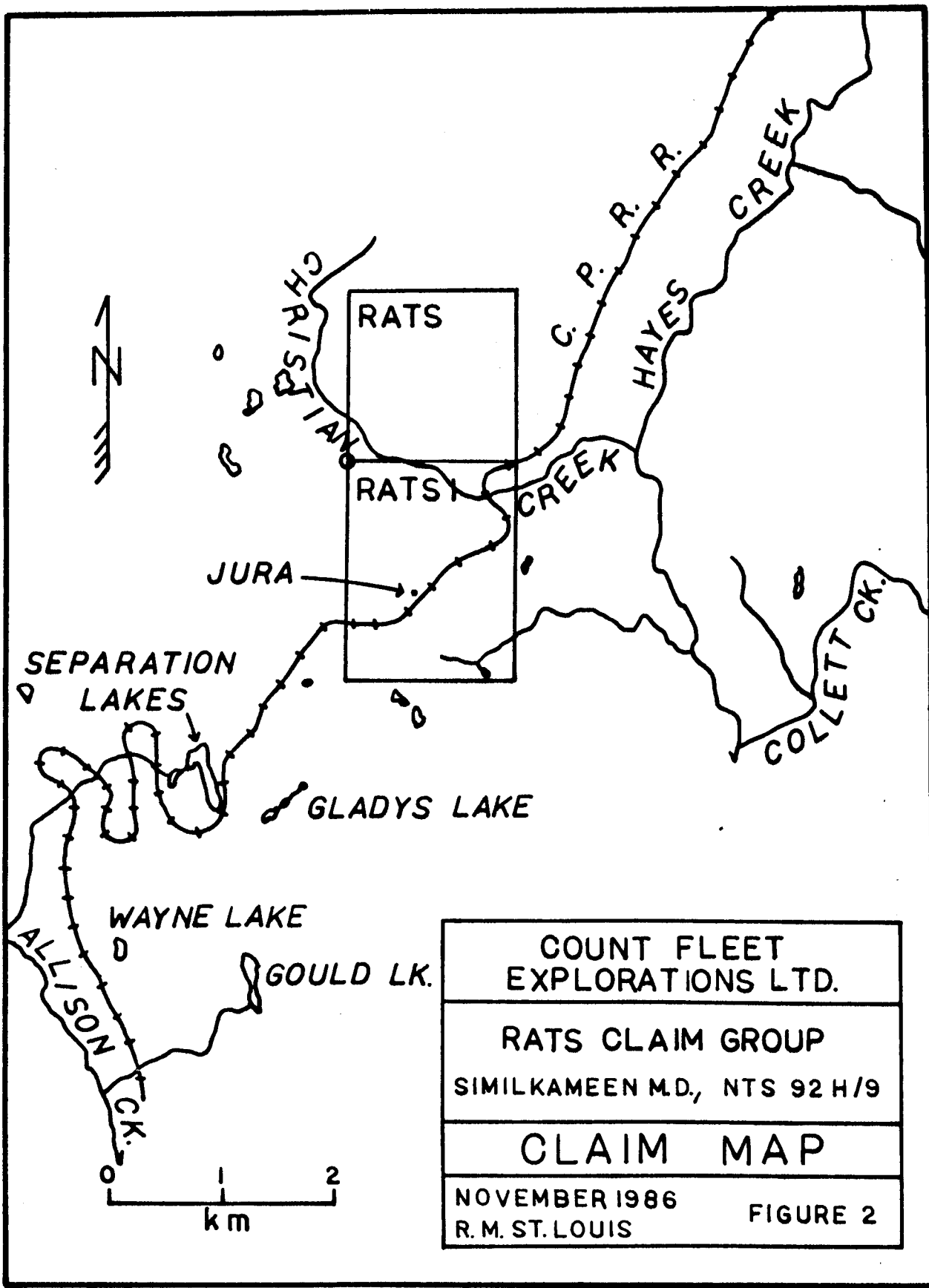
The RATS group consists of two claim blocks, totalling 21 units. The record data for these claims are as follows:

Claim Name	Record No.	Owner	Date Recorded	No. of Units
RATS	2596	L. Nyman	23/5/86	9
RATS 1	2597	"	27/5/86	<u>12</u>
				21

1.4 PREVIOUS WORK

Kennco Explorations held a large amount of ground in the Jura area in the late 1950's. They conducted a geological and geophysical survey of the area, including mapping, soil geochemistry, IP, magnetometer, aeromagnetics, seismic, diamond drilling, and trenching (Anderson and Gower, 1959). Most of Kennco's work was concentrated east of the RATS group, in the vicinity of outcrop 10-1 (see Figure 4). They established that a zone of altered and mineralized (mainly copper) rocks exists in the area around outcrop 10-1, and that a large magnetic high is centered on the RATS block. This magnetic anomaly was interpreted to represent magnetite-rich volcanics or possibly mafic plutonics (Anderson and Gower, 1959).

From the mid-1960's through the early 1970's Canwex Explorations claimed much of the area just north of the RATS group. Their work included magnetometer, IP, and soil geochemistry surveys, as well as trenching and diamond drilling (Dodson, 1969; Smellie, 1970, 1971, 1973). The results of these studies indicate that the mineralization observed in



the northwest corner of the RATS group may extend an additional 600 m northwest of the northwest corner. Also, a second, strongly anomalous zone (copper in soils, IP) exists approximately 2 km north-northwest of the northwest corner of the RATS group.

During the mid-1970's Quintana Minerals Corp. held the ground that most of the RATS 1 block now covers, as well as ground east of the RATS 1. During 1977 Quintana undertook geological mapping and rock geochemistry on these claims (Wolfhard, 1977). As with Kennco, the bulk of this work was carried out in the vicinity of outcrop 10-1. The results were taken to indicate that a zone representing the top of a porphyry copper alteration zone exists in the area of outcrop 10-1 (Wolfhard, 1977). It was felt that the area with the most economic potential lies east of the exposed zone, beneath the overburden and bedrock cover.

The writer was informed by L. Nyman that sometime in the early or mid-1970's Copex drilled about 15 diamond holes, and obtained an average of nearly \$5.00/t Au + Ag over the property. Unfortunately, the writer was not able to find reports substantiating this information.

In addition to the aforementioned work, L. Nyman informed the writer that during the 1930's a couple of high grade copper-gold mines operated on the property. The most profitable was just west of the west claim line, on Christian Creek. The portal and dumps were at creek level, so the writer was not able to make any examinations of this showing. All signs of this operation have been washed away by the stream.

In general, the overall approach to this property has been to look for a large tonnage, low grade, porphyry copper type deposit. With the exception of the small high grade operations during the Depression, very little systematic work has been done to prove up a medium to low grade Au + Ag deposit, perhaps with copper as a by-product. As a result, a large gap in the geological investigations heretofore carried out exists, and warrants attention.

1.5 WORK DONE

1. Geochemical sampling

A total of 30 rock samples were taken for assay. The results for these samples should be available before 1987. Samples were taken for Au and Ag assay, as well as a few for Pd + Pt. The results of these assays will be used to determine the future exploration work that should be done on the property.

2. Geological survey

Geological mapping was done both at a scale of 1:50,000 using NTS 92H/9, and by hip chain and compass for plotting at 1:10,000 and 1:2,500. Due to a lack of outcrop on the property the mapping performed for this study is of a preliminary nature. The writer spent a good deal of time examining the old trenches in the northwest corner of the property, although the intent of these examinations was not to map the trenches in detail, but rather to indicate geological structures and the nature of the mineralization.

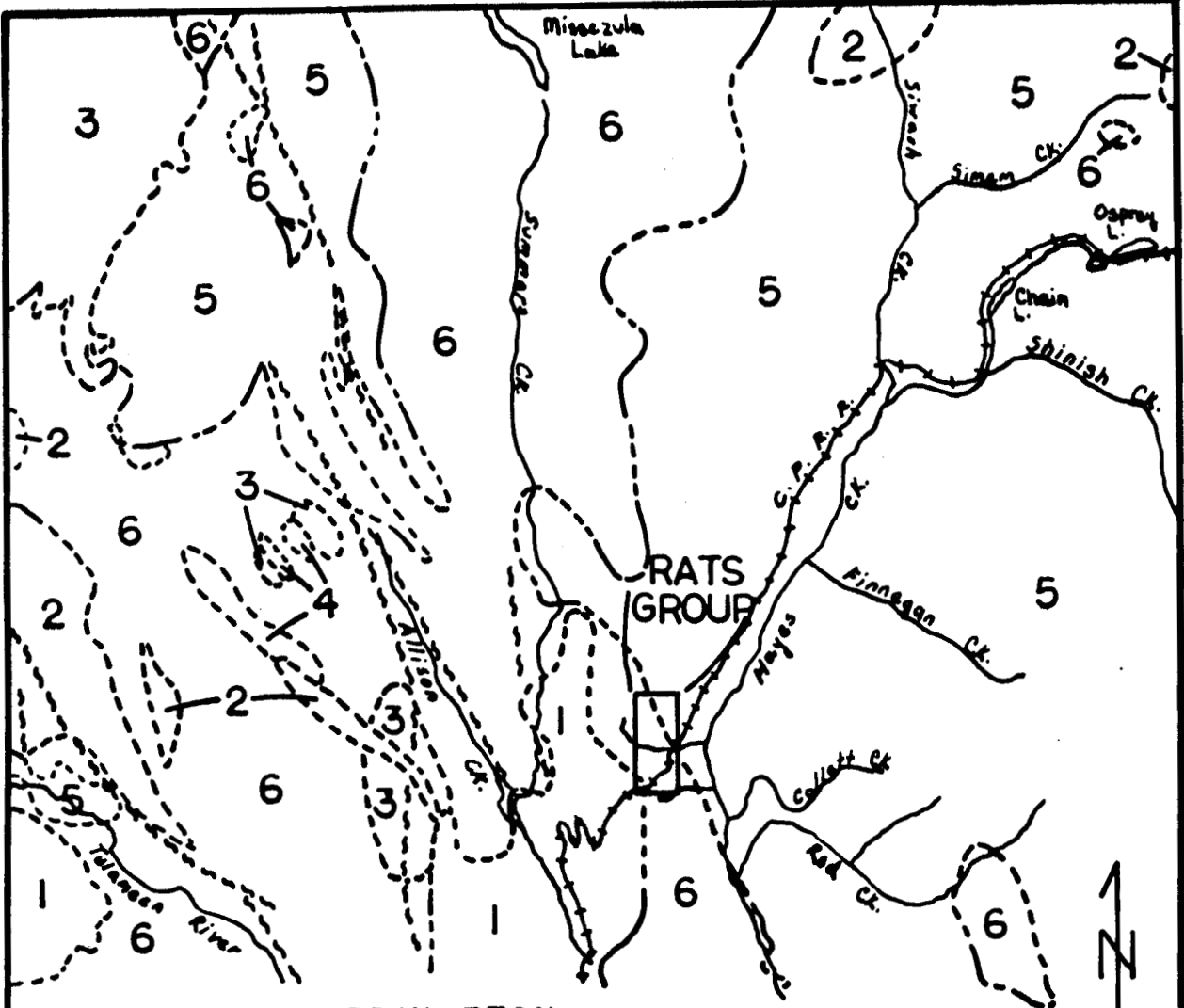
Since the previous work in the area has established that the overall copper grades are relatively low on this property, the precious metals are of extreme importance. Should the rock samples taken during this study indicate sub-economic levels of the precious metals, it may be advisable to reconsider Count Fleet's position with respect to the RATS group.

2 GEOLOGY

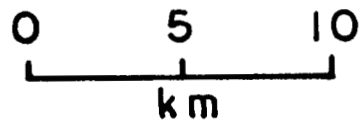
Most of the claims lie on the volcanic rocks of the Triassic Nicola Group. Previous investigations indicated that the bulk of these volcanics are dacites and andesites. However, the writer has observed what appears in hand specimens to be an abundance of basalt, although thin section work would quickly solve this discrepancy. The positive identification of the volcanic lithologies is difficult in the field, owing to the widespread shearing and alteration of these rocks.

In addition to the Nicola volcanics, two other major groups of rocks lie beneath the RATS group. To the northeast is a large body of plutonics of the Coast Intrusions suite, which are Jurassic to Cretaceous in age. These are composed mainly of granodiorite and monzonite, with minor granite. To the southwest lie the Tertiary Princeton Group basalts and sedimentary rocks. Rice (1947) mapped the Nicola-Princeton contact in this area as the northern edge of the Princeton Basin.

The Nicola basalts mapped by the writer are of three main types. The dominant type is a plagioclase basalt, which



- 1 PRINCETON GP.
- 2 OTTER INTRUSIONS
- 3 KINGSVALE GP.
- 4 SPENCE BRIDGE GP.
- 5 COAST INTRUSIONS
- 6 NICOLA GP.



GEOLOGY FROM GSC
MAP 888A

COUNT FLEET EXPLORATIONS LTD.	
RATS CLAIM GROUP	
SIMILKAMEEN M.D., NTS 92 H/9	
REGIONAL GEOLOGY	
NOVEMBER 1986	FIGURE 3
R.M. ST. LOUIS	

contains up to 30 volume percent 1-3 mm subhedral to euhedral plagioclase lathes. The rock is dark green and is frequently saussuritized, as are all of the basalt types. Kaolinization and carbonatization of these basalts are also very common. The second type of basalt is a plagioclase-pyroxene basalt. This rock generally contains less than 20 volume percent plagioclase lathes, and up to 10 volume percent subhedral pyroxene grains less than 3 mm wide. It too is dark green, and exhibits the same types of alteration given above. The third type is an olivine-pyroxene basalt, with subhedral to anhedral olivine grains less than 2 mm wide comprising about 10 volume percent of the rock, and subhedral pyroxene grains less than 2 mm wide also comprising up to 10 volume percent. This rock is usually dark green, has the same types of alteration listed above, and occasionally contains serpentine minerals after olivine.

In a few exposures both the plagioclase basalt and the plagioclase-pyroxene basalt contain foliations that appear to be flow banding. This foliation is usually observed to consist of 1-2 mm wide bands of epidote and magnetite. In addition, cubes of magnetite up to 3 mm wide were observed in these two basalts. These observations are consistent with the conclusions of Anderson and Gower (1959), who attributed the aeromagnetic high centered on the RATS block to magnetite-rich volcanics.

The flow-banding observed in the basalts indicates that these rocks have been somewhat isoclinally folded, with fold axes oriented north-south. Since no features indicating tops

of beds could be found, it is not possible to precisely define these folds in space, although they appear to plunge to the north.

In addition to the Nicola basalts, a dacite porphyry is exposed in trench number 4. This rock has been totally kaolinized, with only the quartz phenocrysts preserved. The rock is chalky white, and has quite a bit of iron staining. Intensely altered dacitic rocks are also exposed in the vicinity of outcrop 10-1.

Shearing orientations were plotted on a stereonet, and four major shearing orientations were established. In decreasing order, these are: $30^{\circ}/30^{\circ}$ NW, $40^{\circ}/40^{\circ}$ SE, $140^{\circ}/25^{\circ}$ SW, and $75^{\circ}/85$ to 90° SE. Wolfhard (1977) observed that a fairly large fault, the Alfalfa Fault, has produced some offset of the rocks in the area of outcrop 10-1. The writer has also observed that at least two parallel northeast trending faults have produced some offset in the area of trenches 9, 10, 11, and 12. With additional field work and air photo interpretation, it may be possible to better determine the locations and extent of other brittle structures, and perhaps folds as well.

Mineralization is concentrated in the northwest corner of the property, although scattered occurrences of chalcopyrite and pyrite occur throughout the claim area. Malachite, chalcopyrite, and pyrite are the major ore minerals, with bornite and chalcocite (?) commonly present as alteration products of chalcopyrite. As shown in Figure 5, the mineralization in the trenches trends northwest-southeast, is about

500 m x 150 m as currently exposed, and consists of two zones. These two zones are adjacent to and parallel one another. The southern zone is at least 450 m x 50 m and contains the best-developed chalcopyrite and malachite in dissemination, stringers, and stockworks. Locally chalcopyrite and malachite may constitute up to 10 volume percent of the rock in the southern zone. Most of the copper minerals in the northern zone, which is about 500 m x 100 m, are disseminated at concentrations less than one volume percent.

The mineralization in the area of the trenches appears to decrease to the north and west, and due to a lack of exposure is open to the east and south. The writer has observed that the mineralization broadly parallels the folding of these rocks, indicating that it is pre-folding in age. As a result, the down-plunge extension of this mineralization could greatly enhance the tonnage of the deposit.

The writer has suggested that at least a few of the highest grade samples be analyzed for Pd \pm Pt. This is because it is the author's experience that basic rocks with fairly high copper contents can sometimes contain appreciable quantities of the platinum group elements (PGE).

The occurrence of specular hematite in trench number 11 may have important implications for gold. Numerous gold-specularite showings are found just north of the RATS group, along Siwash Creek. This association should be examined closely.

Many of the shear zones exposed in the trenches are between 1 and 10 meters wide. These contain abundant gouge

and iron oxides, and may also contain elevated gold values. A number of channel samples were taken across these shear zones for assay. Many of these shear zones contain abundant carbonates, including malachite. In the vicinity of trench number 12 a large zone of chaotic breccia has been developed. In some areas this breccia is well-cemented, while in others it is totally unconsolidated, intensely weathered, and very crumbly. Also in the vicinity of trench number 12 is a 1-2 m thick zone resting on top of the bedrock surface that looks like the famed "White Channel Gravels" of the Klondike. This material is unconsolidated, totally altered to clays and carbonates, and the cobbles are completely rotten. Some malachite and iron oxides were observed in this material, and a channel samples was taken across the entire thickness. This zone may either have been produced by intense weathering or hydrothermal activity. The writer favors hydrothermal solutions as the cause, as this zone is a fairly local phenomenon. If the cause were weathering, one would expect it to cover a larger area than is observed.

Overall, the basalts examined on the RATS group have been fairly well altered to epidote, clays, carbonates, and iron oxides. The degree of alteration is variable, and in some places is clearly related to shearing. The breccia observed in the area of trench number 12 appears to be related to shearing and the carbonate flooding is probably due to cold or warm springs. If, however, the carbonates were deposited in this breccia by hydrothermal solutions, they could contain appreciable quantities of gold and silver.

3. RESULTS AND DISCUSSION

The geological mapping performed for this study has indicated that the RATS group lies mainly on intensely sheared, folded, and altered volcanic rocks. Copper mineralization is best-developed in the northwest corner of the property, although chalcopyrite and malachite were also observed just north of the LCP and near the Nicola - Coast Intrusions contact in the northeast corner of the claims.

Historically, the area in concern has been examined in the context of large tonnage, low grade copper deposits of the porphyry type. As such, the precious metals have not received the attention they may deserve on this ground. Therefore, much of the emphasis of the present work is aimed towards gold, silver, and the PGE.

Over 50,000 m² of mineralized rock is exposed in the area of the trenches. Within this zone the writer has determined that there are three major, potential hosts for medium to low grade gold and silver: the so-called southern copper zone, where gold and silver would be associated with copper and iron sulfides; the brecciated, carbonatized basalts at the west end of the trench area, where a fairly typical hydrothermal (epithermal) gold-silver deposit could possibly exist; and in the intensely kaolinized dacite porphyry, which could also host epithermal gold and silver. The sulfide association is fairly obvious, but the second and third types may be more enigmatic. No true indicators of hydrothermal mineralization, such as cinnabar, stibnite, arsenopyrite, etc. were observed in either of these two areas,

but the preponderance of intense alteration and brecciation suggests that hydrothermal activity cannot be ruled out. Hopefully, the assays of samples taken in this study will shed some light on these possibilities.

One unfortunate aspect of the mineralization in the northwest corner of the property is that it appears very likely that at least the breccia-associated mineralization is located west of the claims. Thus, should the assays return favorable results, it will be necessary to add ground west of that already claimed.

In his map of the Princeton area, Rice (1947) shows a gold occurrence just south of the railroad tracks at Jura. The writer was not aware of this before visiting the property, and therefore did not examine the occurrence. However, since this gold occurrence is situated in Nicola volcanics on the RATS group, it is worthy of investigation. Also, it enhances the possibility of other gold occurrences on the property. Furthermore, gold values of 0.01 oz/t were obtained from samples in the area of outcrop 10-1 (Wolfhard, 1977), suggesting that the area in general has some favorable indicators of potential gold mineralization.

4. CONCLUSIONS AND RECOMMENDATIONS

The presence of extensive copper mineralization, alteration, and shearing in rocks that are abundant on the RATS group is encouraging. Furthermore, reports of gold along Christian Creek (associated with high grade copper), gold near Jura, and low but anomalous gold values within a claim length east

of the property all greatly enhance the prospects for locating a reasonable tonnage of low to medium grade gold, silver, and copper ore on the RATS group. In addition, the possibility of appreciable amounts of the PGE associated with copper cannot be ruled out. While it is unlikely that the PGE will be present in sufficient quantity to warrant exploring for them alone, they may be at levels that would make the property even more attractive. Pending the assays of the samples taken during this study, the writer recommends:

1. air photo work to establish the large-scale structural geology of the claims, and to see how mineralization and structure are associated
2. additional geological mapping and sampling, outcrops permitting, to better establish the detailed geology of the property. Of high importance is an examination of the reported gold occurrence near Jura
3. trenching and percussion drilling to further delineate the eastward and southward extensions of the mineralized zone exposed in the northwest corner of the property, and to test the down-plunge extension of the zone. If possible, obtain the core and/or logs from previous drilling
4. addition of ground to the northwest and east may be advisable.

Of course, should the assays of samples taken for this study return negligible precious metals values, a quick survey of the Jura gold occurrence may determine Count Fleet's position with respect to this property.

5. REFERENCES CITED

- Anderson, J. M., and Gower, J. A., 1959, Report on the geological, geochemical and geophysical surveys on the F. H. group: BCMEMPR Assessment Report 318.
- Dodson, E., 1969, Report on a geochemical survey on the SHR and JOY mineral claims, Princeton, B. C.: BCMEMPR Assessment Report 2299.
- Rice, H. M. A., 1947, Geology and mineral deposits of the Princeton map-area, British Columbia: GSC Memoir 243 and map 888A.
- Smellie, D. W., 1970, Geophysical report - SHR and JOY group: BCMEMPR Assessment Report 2758.
- Smellie, D. W., 1971, Geophysical report - SHR and JOY group: BCMEMPR Assessment Report 3283.
- Smellie, D. W., 1973, Geophysical report - SHR and JOY group: BCMEMPR Assessment Report 4444.
- Wolfhard, M., 1977, Geological and rock geochemical report on Pioneer #1 and #2, Jura area: BCMEMPR Assessment Report 6292.

6. ITEMIZED COST STATEMENT

Dates on property: August 5, 7, 8, 9, 10, 1986
 Number of days on property: 5

Geologist (R. M. St. Louis) @ \$250.00/day	\$1250.00
Assistant (J. Sedlacek) @ \$100.00/day	500.00
Room and board @ \$50.00/day/man	500.00
Vehicle rental (4x4 wet lease @ \$125.00/day)	625.00
Fuel	75.00
Mobilization and demobilization (2 days, 2 men)	800.00
Report preparation	
1 day research @ \$250.00/day	250.00
6 days writing/drafting @ \$250.00/day	1500.00
blueprinting, photocopies	<u>50.00</u>
Total	\$5550.00

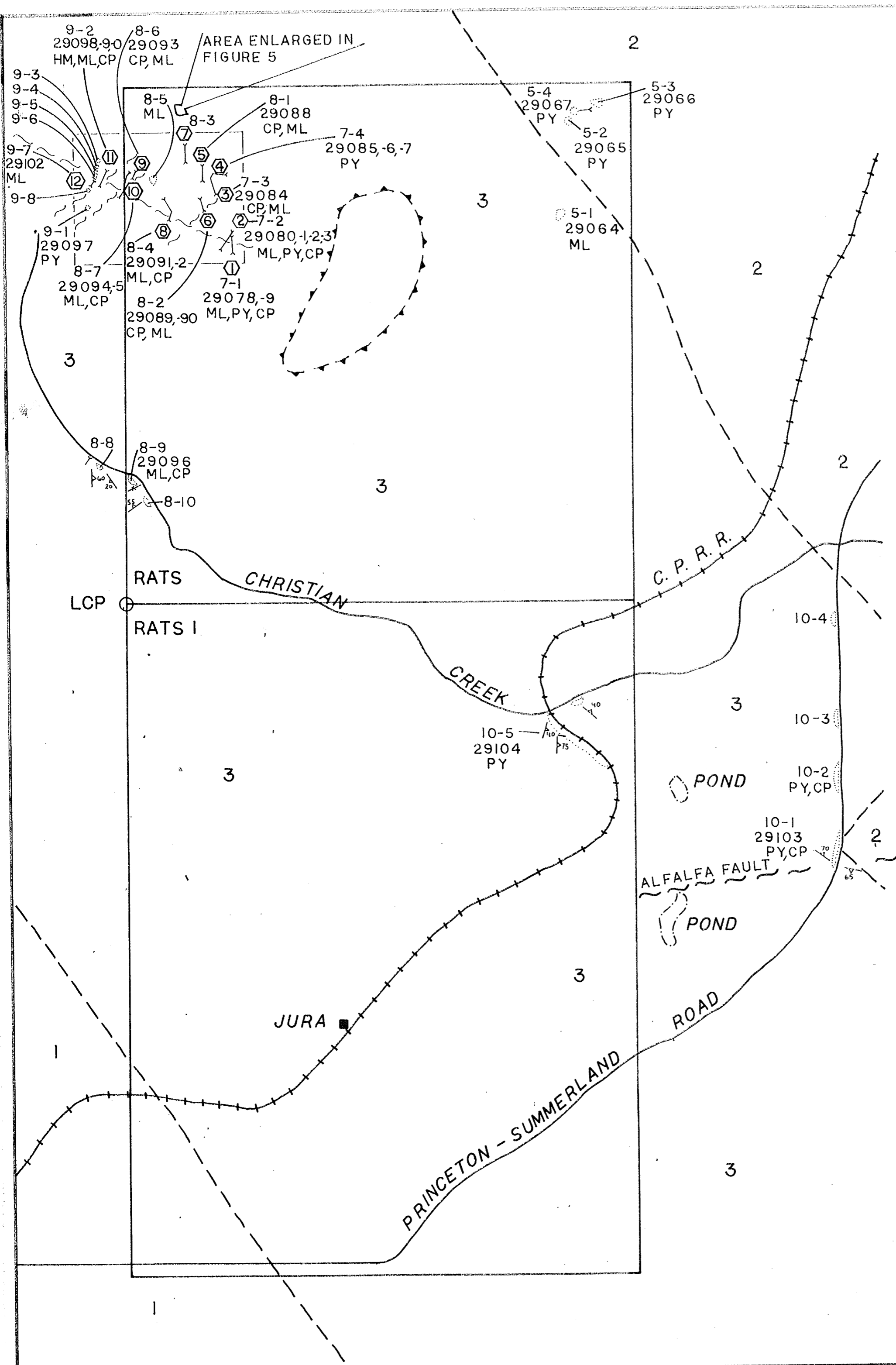
7. CERTIFICATE

I, Robert M. St. Louis, of Tooele, Utah, do hereby certify that:

1. I have been employed to date as a project geologist by Suburban Resources (U. S.) Inc., of Tooele, Utah
2. I hold a Bachelor of Science degree in geology from Syracuse University and a Master of Science degree in geology from the University of Alberta
3. I have practiced geology and geochemistry for four years
4. I am a member of the Mineralogical Society of America, International Association of Geochemistry and Cosmochemistry, and Utah Geological Association
5. the opinions expressed by me in this report are the result of observations made in the field during August 1986
6. I hereby consent to the publication of my report entitled "Report of geological survey on the RATS claim group" dated 12 November 1986, in a prospectus or statement of material facts.

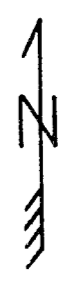
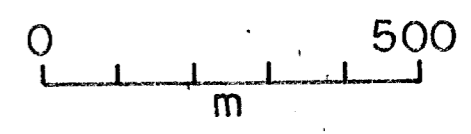
12 November 1986
Tooele, Utah


Robert M. St. Louis, M. Sc.



EXPLANATION

- 1 PRINCETON GP.
- 2 COAST INTRUSIONS
- 3 NICOLA GP.
- ⊗ SHEAR TREND AND DIP
- ⊗ VERTICAL SHEAR
- ~ FAULT OR SHEAR ZONE
- CONTACT
- ▲▲ 5100 GAMMA CONTOUR
- ⊗ OLD WORKINGS
- ① TRENCH AND I.D. NO.
- OUTCROP
- 9-7 OUTCROP NO.
- 29102 SAMPLE NO.
- ML MALACHITE
- CP CHALCOPYRITE
- PY PYRITE
- HM SPECULAR HEMATITE



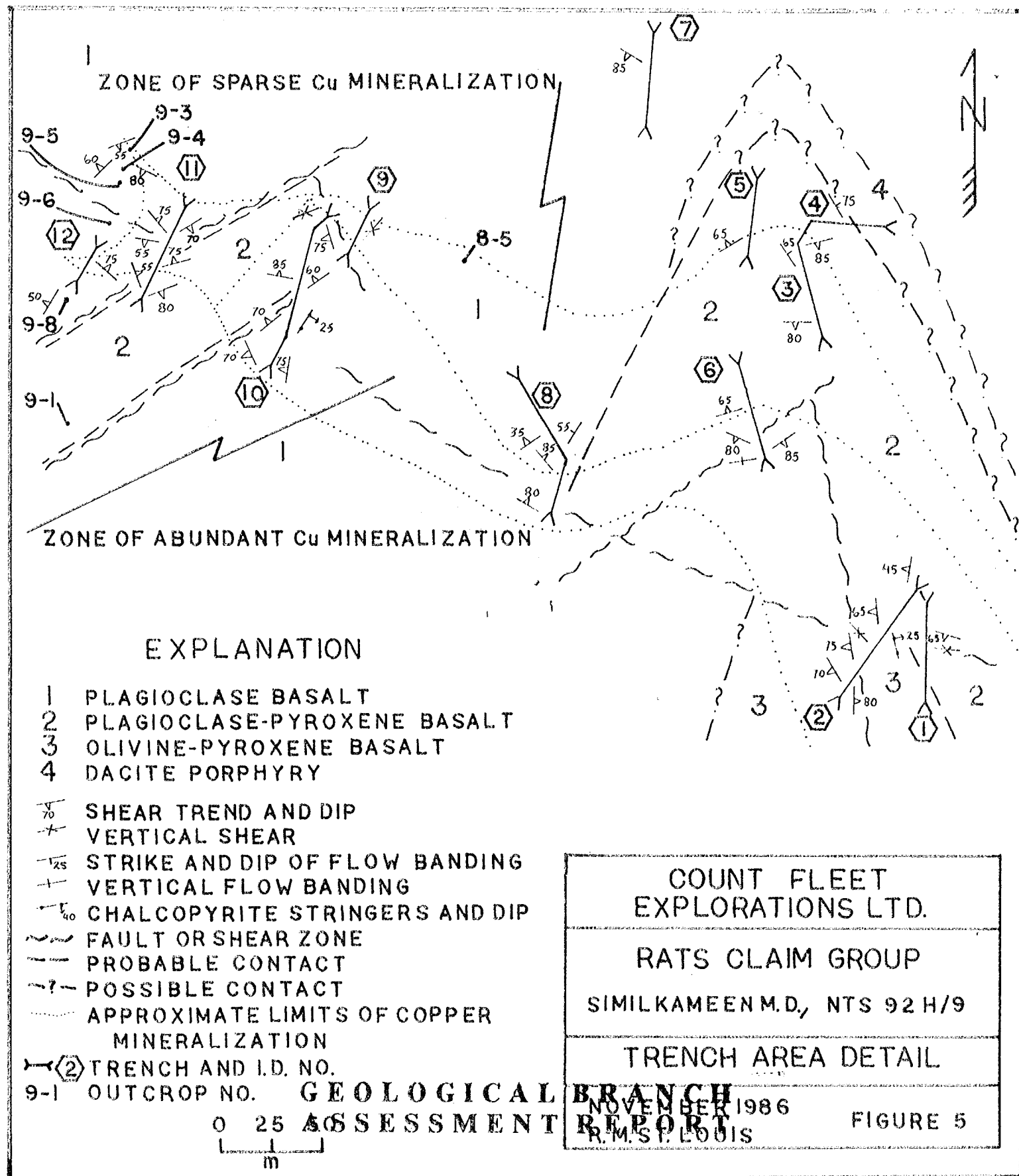
CLAIM POSTS AND LINES
LOCATED BY TOPO. MAP

GEOLOGY: COMPILED FROM
THIS STUDY, RICE (1947),
ANDERSON AND GOWER (1959),
AND WOLFHARD (1977)

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

16,135

COUNT FLEET EXPLORATIONS LTD.	
RATS CLAIM GROUP SIMILKAMEEN M.D., NTS 92 H/9	
GEOLOGY OF CLAIMS	
NOVEMBER 1986	FIGURE 4
R.M. ST. LOUIS	



16,135