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REPORT ON THE  
MCVICAR-BALDWIN-MULLIGAN CLAIM GROUPS  
SQUAMISH AREA, B.C. 92E-11E  
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### SUMMARY

As a result of recommendations outlined in the report "Massive Sulphide Reconnaissance, Indian River, Area, 1977" by P.R. DeLancey, a budget was approved for exploration on the McVicar-Baldwin-Mulligan claim groups owned, or acquired through option agreements, by Texasgulf Canada Ltd. These contiguous claims, covering an area approximately 2 km by 7 km, are located 8 km southeast of Squamish.

The exploration programme was geologically oriented with the aim of selecting a target area for the location of a massive sulphide deposit. Outcrops were examined and the data plotted on topographic base maps at a scale of 1:5,000. In addition, geochemical soil surveys were conducted in selected areas, and geophysical orientation surveys were carried out over some known sulphide occurrences. A recce VLF survey was conducted in the Mt. Mulligan area.

### CONCLUSIONS

The portion of the Indian River volcano-sedimentary belt (J to K) within the map-area, is composed of a complex package of intermediate to felsic volcanic and volcanoclastic rocks.

Felsic volcanic rocks in the Mt. Baldwin area host several high-grade copper-lead-zinc showings which although previously explored, were not recognized as volcanogenic sulphide occurrences. Much of this mineralization occurs as sulphide-silica stockworks, formed from hydrothermal fluids associated with the felsic volcanism. These stockworks are most intense near the top of a large dacite porphyry complex centred in the Mt. Baldwin area. The local presence of banded massive copper-lead-zinc sulphides in chert beds and tuffaceous rocks near or at the top of the pile, indicate a favourable geological environment for the deposition of conformable massive sulphide deposits in this immediate area.

The geology of these showings is strikingly similar to that of the Britannia deposits, where both massive and stockwork ore were mined.

Rocks underlying the Mt. Mulligan-Ray Creek area consist of a thick pile of pyroclastic rocks. Massive sulphide occurrences are chiefly pyritic and are associated with lenses of siliceous rock. Geophysical and geochemical surveys conducted on covered portions of the Crane claim were generally discouraging.

#### RECOMMENDATIONS

1. The area immediately east and north of Mt. Baldwin should be mapped in detail at a scale of 1:1000. Emphasis should be placed on the relationship between the mineralization and the development of the volcanic pile and on later structural complications. Geochemical and geophysical surveys should be undertaken in this area to help define a massive sulphide target. Trenching and shallow x-ray drilling may be warranted in selected areas.
2. Outlying zones of interest, not sufficiently explored during the 1978 programme should be studied.
3. The detailed geology outlined by the 1:5,000 mapping should be related to the overall geology of the Indian River Belt and to the stratigraphic and structural position of the Britannia Deposits.
4. Texasgulf's option on the Crane claim should be dropped.

#### LOCATION AND ACCESS:

The properties are located in southwestern British Columbia, about 8 km east-southeast of the port of Squamish (Figure 1). The claims are situated between two major, northwest flowing drainages - Stawamus River and Raffuse Creek (Figure 2).

Access is by 4-wheel drive vehicle on main haulage and abandoned logging roads, constructed by McMillan-Bloedel Co.

#### PHYSIOGRAPHY, VEGETATION AND CLIMATE:

The terrain is rugged; elevations range from 400 metres in the main valleys to 1500 metres along the ridges. Tributary creeks, feeding the main drainages are deeply incised.

Most of the area is timbered, or "clear cut" by recent logging operations. The older logged areas are covered with a dense second growth of bushes and shrubs. Above 1400 metres the vegetation changes from coniferous forest to more open alpine vegetation.

The climate is moderate. The higher elevations receive abundant snowfall during the winter months; much of this snow remains until mid-summer.

#### HISTORY:

Mineral showings were discovered in the Ray Creek and McVicar Creek areas in the early 1900's. Prospectors tested the showings by trenching and driving short adits along the mineralized zones.

The "McVicar" showings proved the more promising of the two areas. Britannia Mining and Smelting Company optioned these properties at various times and the more impressive showings were tested by diamond drilling. In 1946 the "McVicar" properties were acquired by Western Surf Inlet Company and diamond drilling was carried out during the summers of 1953 and 1954. Reports

on the property by Victor Dolmage, consulting geologist, summarize this work. In 1969 the property was optioned to Croydon Mines, who conducted a regional wide-spaced TURAM-EM survey. During the 1971-72 season, 4,072 feet of NQ diamond drilling was carried out under a joint venture agreement with Dowa Mining Co. of Japan. A map showing the location of all drill holes and trenches is presented in Figure 8. In 1977 Texasgulf Canada staked the Baldwin 1, 2 and 3 claims adjoining the McVicar Crown Grants, and subsequently optioned these grants from Matachewan Consolidated Mines Ltd., who had acquired the interests of Western Surf Inlet. The Baldwin 4 and 5 claims were staked by Texasgulf in the summer of 1978, on favourable ground to the immediate north.

The showings discovered in the Ray Creek area are essentially pyritic with local concentrations of chalcopyrite and sphalerite. In 1929 a "Radiore" electrical survey was carried out in the area of Ray Creek Basin for Radiant Copper Ltd. The survey indicated a number of weak conductors, which appeared to be caused by "pyritic shear zones". Later work focused on a copper showing at the head of the basin; three diamond drill holes tested this showing. In March 1977, M. Levasseur staked the Crane Claims in the basin area; assessment work included some cat trenching on the copper showing. In October 1977 Texasgulf staked the Mulligan 1 Claim centred in the area of Ray Creek and in the following spring optioned the Crane Claim from Eagle River Mines who had acquired the ground from M. Levasseur. The Mulligan 2 and 3 claims were staked in early spring 1978, for additional protection.

#### EVALUATION OF PREVIOUS EXPLORATION:

Past exploration was largely directed towards the extension of high-grade surface showings by trenching and diamond drilling. This exploration produced less than encouraging results. The showings tend to be discontinuous along strike and down dip. Results of geophysical surveys have been inconclusive because of the poor quality of the work in this rugged terrain, the presence of conductive faults and shears, and the non-conductive nature of much of the mineralization. Results of geochemical surveys are complicated by the

presence of transported surficial deposits. The most successful aspect of these programmes has been the discovery of new showings by conventional prospecting or, by uncovering mineralized outcrops during road construction.

Previous exploration was conducted with very little understanding of the geology. This fact is emphasized by Victor Dolmage in his 1954 report on the McVicar property. Geological mapping has been very regional (1"=4 mi), or very local, and compilation of exploration results is incomplete. Exploration concepts were largely influenced by those in vogue at Britannia at the time, and hence, the showings were considered to be shear zone replacements rather than volcanogenic sulphide concentrations.

#### REGIONAL GEOLOGY:

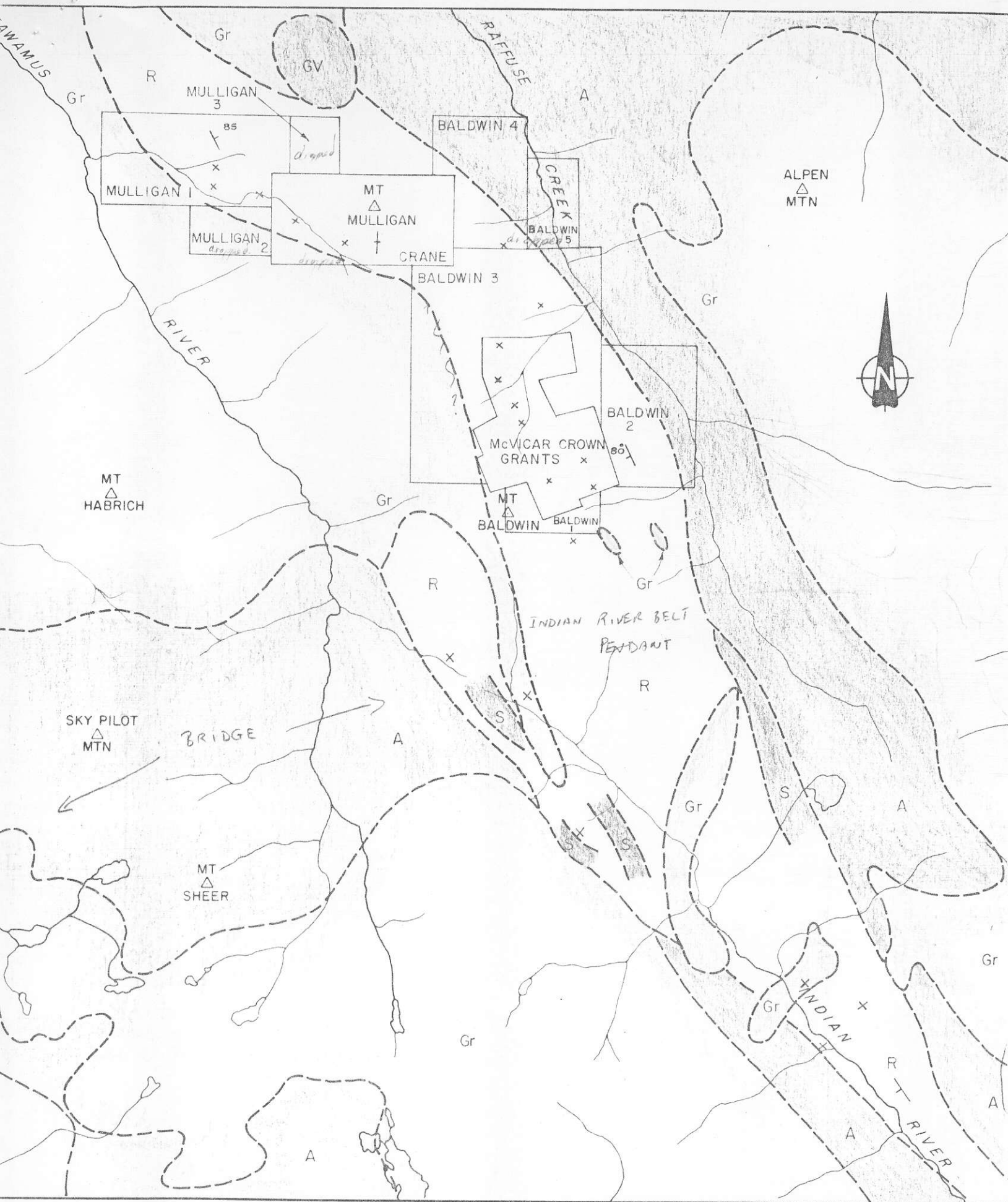
The map-area lies within a belt of volcano-sedimentary rocks referred to as the Indian River Pendant. This pendant is one of many remnants or septa of stratified rock surrounded by rocks of the Coast Crystalline Complex. Although regional grade of metamorphism is greenschist, higher grade metamorphism is noted near plutonic bodies.

The belt, measuring about 4 km x 20 km, trends north-northwest and is connected to the Britannia Belt, lying 10 km to the southwest, by a "bridge" of volcanic rock. The belt tapers to the southeast and is in contact with younger Garibaldi Volcanics to the north (Figure 2).

The rocks of the Indian River Pendant are believed to be correlative with the upper part of the Gambier Group which is of Upper Jurassic or Lower Cretaceous age (G.S.C. Memoir 335, Vancouver North, Coquitlam and Pitt Lake Map-Area, B.C.: J.A. Roddick 1965).

#### PROPERTY GEOLOGY:

The Baldwin-McVicar and Mulligan areas were mapped on a scale of 1:5,000 (see Figures 5 and 6). A simplified 1:10,000 geological map and a map showing a cross-section and a conceptual model were photographed (for budget presentation) and prints of these maps are presented in Figures 3 and 4 respectively.



## STRUCTURE

The structure of the felsic belt is complex and not fully understood. Bedding attitudes have a general northwest trend with dips averaging 50° to the southwest. Although local flow directions are variable they are generally parallel to the regional trend. A regional foliation, imposed during tectonic activity associated with the emplacement of the Coast Range Intrusives, is parallel to sub-parallel to the bedding. Locally, attitudes are quite variable, especially adjacent granitic contacts. Local dip reversals and small scale folds suggest a complex regional fold pattern. Faulting is common, several of the creek drainages appear to be controlled by the larger fault structures. Shear zones are marked by narrow zones of intense foliation and are accompanied by local bleaching and alteration. These zones are generally pyritic and are sub-parallel to the general stratigraphic trend.

## MINERALIZATION

Most of the significant copper-lead-zinc showings are located on the McVicar Crown Grants. These include the Whistler, Harding, Rainstorm, Violet, Lily-Rose-Grouse Fraction and Cabin Fraction Showings, which are named after the mineral claim on which they are located. The Slide Creek showing is located on the Baldwin 3 Mineral Claim.

Much of this mineralization occurs as high-grade copper-lead-zinc veins and lenses associated with the siliceous stockworks. Although the veins are frequently cross-cutting, their general trend is parallel to the regional foliation and stratigraphy. Several mineralized zones can be followed along strike for several hundred metres.

The showings on the Mulligan-Crane claims occur within pyroclastic rocks and are essentially pyritic, with only local concentrations of chalcopyrite and sphalerite. They occur as narrow zones of foliated, siliceous, pyritic rock having strike lengths up to several hundred metres. Thicker lenses of massive pyrite (up to 3 metres wide) occur as pods within these zones. No economic precious metal values are contained in these pyritic rocks.

The significant showings are described below (see Figure 8 for location).



### Whistler Showings

Several zinc, lead and copper sulphide occurrences are exposed on a ridge northeast of Mt. Baldwin. The mineralization is associated with intense quartz veining and silicification. Trenches, dug across the trend of the mineralized zones, have exposed high-grade sections of massive sulphides. Sphalerite is the most dominant, galena occurs locally as pods, and chalcopryite as cross-cutting veins. Some banding of the sulphide is noted; this may be primary and related to a narrow cherty horizon.

The immediate area of the trenches was mapped on a scale of 1:500 (see Figure 9). Chip samples were taken across three of the trenches and assayed for copper, lead and zinc. These results correspond fairly well with sampling done by Western Surf Inlet, significant widths and assays are as follows:

Trench #1 - 3.2 m of 1.3 oz/T Ag, 2.2% Cu, 0.7% Pb and 4.6% Zn.

? ft → — Trench #2 - 12.1<sup>ft?</sup> m of 0.4 oz/T Ag, 4.5% Cu, 0.9% Pb, 4.2% Zn.

Trench #3 - 1.3 m of 2.8 oz/T Ag, 3.5% Cu, 10.2% Pb, 15.6% Zn.

Four holes were drilled under the showing; results are not known.

### South Harding Showings

These workings are on trend with the Whistler Showings, about 250 metres to the north-northwest. Several cuts have exposed veins and fracture fillings of chalcopryite in a rhyodacite porphyry. This zone of mineralization was defined by an electromagnetic survey (Western Surf Inlet, 1962), subsequent diamond drilling proved less than encouraging.

### North Harding Showings

Several zones of massive pyrite with minor chalcopryite are exposed along the sides of Canyon Creek. The host rocks are altered pyritic schists which occur along a north-south shear.

### Rainstorm Showings

These showings are located about 500 metres north-northwest of the

Harding workings. They are frequently referred to as the "copper showings" because of the interesting widths of massive chalcopyrite exposed in shallow cuts and trenches. The sulphides occur over a strike length of 90 metres. The adjacent rock is a highly siliceous rhyolite, which forms a lens-like body within a sequence of rhyodacite pyroclastic rocks. Contacts of the massive chalcopyrite with the siliceous host rock are sharp. In some parts of the zone, the sulphides appear to be conformable lenses (frequently contorted), in other parts the sulphides appear more vein-like, and associated with the silicification.

#### Lily, Rose and Grouse Fraction Showings

The Lily and Rose workings lie about 270 metres east of the Whistler Showings. Several trenches and open-cuts have exposed discontinuous pyrite-chalcopyrite veins in a quartz-stockwork.

A flat lying zone of massive galena with minor chalcopyrite is located on the Grouse Fraction, just south of the Lily Claim. This mineralization is associated with an anastomosing stockwork of quartz-chalcedony veins and a local zone of brecciation. Samples taken across two parallel veins .5 metres wide and .4 metres wide assayed .01 oz/T Au, 1.3 oz/T Ag, 5.7% Cu, 47% Pb, 3% Zn, and .01 oz/T Au, 1.3 oz/T Ag, 1.4% Cu, 22% Pb and 6% Zn respectively. This immediate area has been tested by diamond drilling (Croydon 1971); results were not encouraging.

The "Ruth" mineral occurrence is located near the summit of the cat-road. There is no mention of this showing in the "McVicar" records and it is likely that it was exposed during the construction of the road (1970). Since the geology of this immediate area is complex, the outcrop was further uncovered by pick and shovel, and hydraulic washing. A 15 cm wide vein of sphalerite, pyrite, chalcopyrite and galena occurs in a siliceous breccia, characterized by large fragments of green rhyodacite porphyry in a white, quartz matrix. While the vein cuts across the north-northwest trend of the breccia unit, sulphides are present which appear roughly conformable. A local, south-plunging (27°), fold structure occurs just south of the sulphide vein. To the east, the vein terminates against a north trending Garibaldi dyke.

### Cabin Fraction Showings

These showings are the most northerly of the McVicar prospects. Semi-massive to disseminated pyrite with minor chalcopyrite and sphalerite occur in a wide zone of siliceous schist. This "shear zone" trends north-south across McVicar Creek and dips approximately 45° to the west. Little exploration work has been done in this area.

### Violet Showings

These workings are situated on a steep slope 150 metres southwest of the Rainstorm Showings. Chalcopyrite, with lesser sphalerite and galena, occurs in a quartz-chalcedony stockwork which cuts rhyodacite porphyry. Samples selected from the trenches gave the following assays:

.010 oz/T Au, 2.24 oz/T Ag, 9.15% Cu, 2.16% Pb and 5.50% Zn.

.005 oz/T Au, 0.56oz/T Ag, 1.14% Cu, 3.30% Pb and 6.05% Zn.

.008 oz/T Au, 1.83 oz/T Ag, 3.28% Cu, 13.45% Pb and 18.70% Zn.

Local folding is noted in this area.

### Slide Creek Copper Showing

A copper occurrence was discovered while following up a zinc-lead silt anomaly in Slide Creek. The source of this anomaly has not been found. A zone of fracture controlled chalcopyrite mineralization is exposed along a logging road just south of Slide Creek and about 1.5 km north of the McVicar Showing. The sulphides are hosted by a cherty rhyolite, near a contact with a rhyodacite agglomerate. The mineralized fracture system can be traced along a north-south trend for approximately 100 metres. Selected grab samples average 3.4% copper.

### Ray Creek Basin Showing

Local vein-like concentrations of pyrite, chalcopyrite and sphalerite are hosted by a lens of cherty rhyolite breccia, exposed at the head of Ray Creek Basin. Previous exploration includes 3 diamond drill holes and some local cat trenching.

