CCH RESOURCES LTD.

ASSESSMENT REPORT

BLANKET GEOLOGICAL AND GEOCHEMICAL SURVEY

JOUMBIRA CLAIMS 1 TO 56

105 - M - 13

63° 51' 135° 50'

MAYO AREA

YUKON TERRITORY

ANGUS WOODSEND,
MAY 14, 1979
This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $26,200.00.

R. Debicki
Acting Resident Geologist or July 13, 19-

Considered as representation work under Section 53 (3) Yukon Quartz Mining Act.

R. Baxte
Supervising Mining Recorder

Commissioner of Yukon Territory
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INTRODUCTION

The 56 claims of the Joumbira Group are located on the south-east slope of Mount Haldane, some 30 km NNW of Mayo. A claim sketch map is attached.

The claims are owned by CCH RESOURCES LTD. of Toronto, Ontario.

The work outlined in this report was conducted between June 1st. and September 10th., 1978 by CCH RESOURCES as part of the Cortin Joint Venture's exploration program.
EXPLORATION HISTORY

Prior to CCH's 1977 program all exploration on Mount Haldane was for lead-silver. Most of this work centered on a Pb-Ag showing in Bighorn Gulch which was investigated by Yukon Silver-Lead Mining Co. in 1918-19 and Silver Titan Mines Ltd. in 1964-65. In 1964 a G.S.C. regional stream sediment survey located Cu, Pb, Zn, Ag, Mo, W and As zones centered on two Sn highs in Fortune Creek (Gleeson, 1965). In 1965, United Keno Hill Mines staked the "H" claims on the north-east slope of the mountain and conducted a soil geochemistry survey for Cu, Pb and Zn. In 1967, the Fort George Mining and Exploration Company staked 34 claims on the south-east side of the mountain. They discovered a small quartz-siderite vein containing pods of galena. Drilling failed to locate any sub-surface extension of the mineralization. In 1971 Canadian Reserve Oil and Gas conducted a soil geochemistry survey, EM 16 electromagnetics, and a magnetometric survey on the south-east side of the mountain. Results of this program were never followed up. As of May, 1977 4 claims, covering the old Bighorn Gulch workings, were held in good standing by Mr. Ewing of Mayo. Up to this time no tin or tungsten mineralization had been reported on the mountain.

In 1977 CCH Resources staked 16 claims over Gleeson's two Sn highs in Fortune Creek, conducted detailed stream sediment geochemistry in Fortune, Aldis and Weasel creeks, and also prospected the ridges surrounding Fortune Creek. This work confirmed Gleeson's results and located two quartz-biotite-porphry dykes (Q.B.P.) cutting across Fortune Creek. Visible cassiterite was found in scree near one of these dykes on the north ridge of Fortune Creek basin.
Field work, during the 1978 field season, consisted of blanket geological mapping (1:2000 scale), soil and rock chip sampling and some hand trenching. An additional 40 claims were staked on the mountain in 1978 bringing the total number of claims held by the venture to 56.

Most of this work was done by E.P. Dillon, Geologist, who is also co-author of this report.

GEOCHEMICAL METHODS

Soil and scree-fine samples were collected on a 50 m by 50 m grid in the Fortune Creek basin, and on a 100 m by 50 m grid over the Aldis and Weasel Creek basins. The -80 mesh fraction was analyzed for Sn, W, Cu, Pb, Zn, Ag, Mo and As by Bondar-Clegg in their Whitehorse, Vancouver and Ottawa laboratories.

The grid lines were run from a single base line established across the drainage basins (see Map TV-9). The base line was checked and tied in around the adjoining ridges. All survey work was by chain, compass and altimeter, and closure errors up to 25 meters were frequent.

GEOCHEMICAL RESULTS

In general Sn, W, Zn, and Ag exhibit a fairly close correlation. Cu, Pb, Mo and As give scattered anomalous zones showing little or no sympathy with the other elements.

Copper and lead gave minor local anomalies, and only over Target A did they correlate well with the other elements.
Only one weak molybdenum anomaly was found, near the head of Fortune Creek below the two narrow Q.B.P. dykes that cut the west ridge.

Arsenic values in excess of 1000 ppm describe a generally circular area centred on Target E and enclosing Targets D and C. Values fall away outside this, reaching lows around 50 ppm over Target A.

Tin, tungsten, zinc and silver, the four most useful mineral indicators, plot to form five strong targets areas which are described individually below.

Target A (Fed showing)

Initial soil sampling returned several highly anomalous Sn, W, Zn, and Ag values which were followed up by a detailed grid over a 200 m x 600 m area, on which analysis for Sn, W, and Zn were run. (See Map TY 10).

Geochemically, Sn, W and Zn were concurrent and maxima of 1051 ppm, 600 ppm and 20,000 ppm respectively were obtained from the soil and scree.

Outcrops are frequent on the ridges, but very rare on the scree-blanketed slope faces.

The strongest geochemical values occur west of the ridge in a scree slide.

This section of the anomaly strikes directly down slope, but associated high values on and behind the ridge line suggest that this is a true strike direction.
East of the ridge line the anomaly flexes to form the opposite limb of an arcuate structure, and although very high Zn values (up to 3500 ppm) are persistent, Sn and W are weak. This flexure may be in part a result of dip on topography.

The majority of the analyses were from the -80 mesh fraction, but a few -20 mesh fraction Sn analyses were tried. As can be seen on Map TY-10 some of the strongest anomalies are not detectable in -80 fraction. In future, on detailed grids, a coarser fraction will be analyzed.

Following-up the initial geochemical results, "in situ" cassiterite mineralization was found on the west slope. The cassiterite occurs as black to honey brown stubby crystals, seldom doubly-terminated, up to 2 mm long. These crystals lie in open fractures within the quartzites. The fractures are 3 mm to hairline in width, and contain a filling of cassiterite, small quartz crystals and a mat of tourmaline and chlorite needles.

Three trenches, (Trenches 4, 5 and 6 as shown on Map TY-10) all in quartzite, were put down to bedrock and channel sampled along their lengths. The values recovered are shown on Figs. 1 to 3. Mapping of the trenches revealed no obvious difference between the mineralized fractures and the more frequent barren ones. At the south end of Trench 5 a quartzite with darker (?) tourmaline-chlorite bands was found which, though not carrying any visible cassiterite, analyzed 4000 ppm Sn in a grab sample.

In all cases the tin was confined to the one fracture set which strikes north-northeast and dips steeply east in
trench 4 and west in trench 6. This change of dip may be related to the flexure of the geochemical anomalies already described.

It was also noticed that tin deposition is affected by neither the degree nor the frequency of fracturing. It should also be said that since the minerals adhere fairly loosely to the fracture faces, and can be easily removed by weathering, channel samples from weathered bedrock do not necessarily represent true grade values.

Map TY-7 shows that only one small float occurrence of Q.B.P. lies within the detail grid. The nearest outcrop of intrusive rock is some 300 m north.

With regard to tungsten and zinc mineralization, a few pieces of quartz-vein float with scheelite have been found west of the ridge line. No wolframite has been identified, nor any zinc mineral. Oxidation levels suggest that surface occurrences of sphalerite would be unlikely.
Target B (Pro Showing)

This target is about 500 m west of A and has a similar strike. Prospecting over the anomaly did not turn up any visible cassiterite, though brecciation with tourmaline-chlorite alteration is frequent. The anomaly trend is not directly down-slope.

Where the baseline cuts the ridge north of B the geochemical response is low, even though it is here that we found visible cassiterite in 1977 (Pro Showing). This year the mineralized location was trenched, and the results are shown in Fig. 5.

A Q.B. P. dyke was exposed. It is typical of the area, in places very altered and kaolinized, but also frequently fresh with unchloritized biotite phenocrysts. The tin values come from a narrow zone in the metaquartzite, where several small fractures carry cassiterite, tourmaline, chlorite and some quartz. Greisen-bordered quartz ladder veins are fairly common around this locality, but they carry no visible tin, and appear to predate the mineralized fractures, (see Fig. 4).

Fig. 4. Relationship Between Bedding, Greisen Vein and Mineralized Fracture.
Trench sampling showed a fairly close association between Sn, W, and Zn in the main footwall metaquartzite. The tungsten occurs as fine scheelite particles in the more altered parts of the metaquartzite -Q.B.P. contact. No zinc mineral was identified.

Target C

Ag, with local Sn, Zn, and W highs, occurs near the valley floor. It is possible that anomalies C, B and A coalesce, particularly in view of the fact that here the Q.B.P. seems to form a stock or plug. No mineralization or abnormal alteration has yet been found.

Target D

Downslope from here a wide strong anomaly gives values up to 340 ppm W. This zone is different from all others in that, except for a little silver, other elements are absent. There is no outcrop, the whole slope being covered in a quartzite block scree mantle. Small quartz veins with scheelite have been found as float, thus the anomaly probably represents a stock work zone.

Target E

W and Ag with minor Sn and Zn follow the local dyke trend. Trenches 2 and 3 on the ridge line are on two of these dykes, (see Figs. 6 and 7). The situation is familiar, with narrow Q.B.P. dykes, quartz veins with some greisen borders and variable alteration. The dykes themselves are marginally enhanced in tin, while Trench 2 carries 2000 ppm W over 0.5 m in the quartzite hanging wall, and Trench 3 carries 100 ppm Ag over 0.5 m in the dyke hanging wall.
C H R E S O U R C E S
105 - M - 13
T R E N C H 2 (S E C T I O N)
N. W A L L, L O O K I N G N O R T H
D R. B Y E P O L
S C. 1 1 0 0
C T E. N O. 4 5 4 F I C 6
ROTTED DYKE
CONTACT
042/41

DYKE + QV's
ALTD. AND
STAINED

DYKE + QV's
LEADER

DYKE + QV's

ALTD. MQ

DYKE STRINGER
+ ALTD. MQ

MQ

ROTTED DYKE
CONTACT 060/36

D/115/22

W ppm

Sn ppm

Zn ppm

Ag ppm

C CH RESOURCES
105 - M - 13
MT. HALDANE - JOUMBIRA GROUP

TRENCH 3 (SECTION)
N. WALL, LOOKING NORTH

DRAWN: EPG SC. 1:100 DTS. NOV 76 FIG. 7
GENERAL GEOLOGY

Map TY-7 illustrates the geology of the area mapped.

Most of the ground is underlain by the Keno Hill Quartzite of (?) lower Cretaceous age, (Green, 1972). Sills and lenses of "greenstone" conformably intruded the quartzites soon after deposition. Later quartz-biotite porphyry (Q.B.P.) intrusions, in the form of dykes, sills and possibly a small stock or plug, cut both the quartzites and greenstones.

Several stages of quartz veining occur in the area, and quartz-greisen veining with typical greisen type alteration is commonly associated with the Q.B.P. intrusives.

Keno Hill Quartzite

This unit is a sequence of thick to thin-bedded quartzites with interbeds of sericitic and graphitic schist all dipping 18-25° to the west. On weathered surfaces the quartzites are medium to dark grey with occasional buff zones. Fresh surfaces appear light grey to black with buff white zones. The buff zones are common near contacts of Q.B.P. and may be the result of bleaching and recrystallization during intrusion.

Quartz sweats and minor veining parallel to the bedding give the more massive quartzites a gneissic appearance. White quartz sweats in the thin-bedded quartzites appear as pods or lenses within the slightly flexed beds.

The quartzites are medium to fine-grained, extremely hard and usually show sub-conchoidal fractures on breaking.
The interbedded schists are fine-grained dark green-grey to black and exhibit shaly partings which often have aggregates of actinolite needles on their faces.

"Greenstone"

Conformable sills or lenses of dark green-grey to black schistose "greenstone" intrude the quartzite unit within the map area. Composition varies from andesitic to dioritic.

The largest exposure of these rocks is near the head of Fortune Creek where a well-developed rust zone occurs at the base of the "greenstone". However, no sulphides were seen either in the rust zone or in the "greenstone" proper.

Minor exposure of massive, dioritic "greenstone" occurs within the same area. These rocks are well-jointed and have only minor rust-staining in relation to their schistose counterparts. Poor exposure precludes any age correlation between these two "greenstone" types.

Quartz-Biotite Porphyry

The outcrop and scree distribution of the Q.B.P. dykes is shown on Map TY 7. Near the center of the Fortune Creek valley, above the base line, the dykes appear to coalesce into a sill-like structure. Below the base-line a large area of coarse-grained quartz-biotite porphyry scree seems to outline a small stock.

On weathered surfaces these intrusives are a light buff tan with frequent rusty patches. On fresh surfaces they exhibit a medium to fine-grained matrix of quartz, biotite and feldspar with phenocrysts of quartz and biotite up to 4 mm in
diameter. Arsenopyrite is common and occurs as medium to coarse disseminated grains which often give fresh surfaces a spotted rusty appearance.

The intrusive-quartzite contacts are sharp and usually exhibit varying degrees of greisenization.

Minor chloritization occurs where the dykes cut the thin-bedded quartzites. Fine fractures which cut the contact and continue into the quartzites are lines with varying amounts of sericite, quartz and occasional tourmaline needles.

Quartz Veins and Quartz-Greisen Veins

Quartz veins occur throughout the property and range from narrow stringers to massive continuous veins up to 2 m wide.

Where quartz veins cut the porphyry intrusive they are often bordered by sericite or muscovite. Tourmaline is occasionally present in the more heavily sericitized vein borders. In one particularly impressive outcrop the intrusive is shot through with a system of massive, horizontal, greisen-bordered quartz veins.

RECOMMENDATIONS

Five strong geochemical targets have been found, and it is recommended that each be covered by a detail soil or scree-fine grid similar to that put over Target A (Fed showing). This latter grid must be expanded to cover possible extensions. Detailed mapping, chip sampling and trenching to bedrock will allow systematic appraisal of each target. Additional reconnaissance further down the southeast slope of the mountain may discover other targets.