DRAFT

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GOODENOUGH (82LSW004) by R.M. Barker

(Fig. No.)

LOCATION : Lat. 50° 18' Long. 119° 28' (82L/6W)

VERNON MINING DIVISION. Approximately 15km WNW of Vernon.

CLAIMS : GOODENOUGH.

ACCESS : From Vernon via Kamloops Road (Okanagan Highway) for 13km, south along Westside Road for approximately 14km, west into Six Mile Creek Road for 2km (part paved, part good quality logging road), then southwest into Siwash Creek Road for a further 2km of all-weather logging road. Final access is by 2km of farm roads commencing at a ranch yard on the north side of Siwash Creek Road.

OWNER/OPERATOR : BRICAN RESOURCES LTD.

COMMODITIES : Copper.

INTRODUCTION

The Goodenough property has had a long and complex history dating back at least as far as 1899. Perhaps, to quote Cairnes (1931), "interest has been maintained by the extent and variety of mineral deposition rather than by assay values". Certainly, several styles of mineralisation are represented. Despite multiple, albeit limited, phases of exploration, both surface and subsurface, the genesis of the Goodenough deposit(s) is still not beyond dispute.

EXPLORATION HISTORY

Norris (1899) reports the staking of the I.O.U. group of claims on a "6-foot ledge lying between lime and porphyry, carrying copper and gold values". These claims were almost certainly staked on the ground that was later to become known as the Goodenough property (Cairnes, 1931).

1900 to 1905 - The property had a succession of owners, and was known variously as the Porteous Camp, Gail group, and Gale group. Considerable exploration work was carried out, including a number of shafts and cross-cuts, a 20m tunnel, open cuts, clearing and stripping.

1921 - The property was now held as the Queen and St. Claire claims. No new work was reported.

1924 - The property, now known as the Goodenough group, was acquired by H.J. Blurton of Mara. No significant work was reported although some sampling and assaying are indicated. However, the owners were apparently involved in hydraulic placer mining on nearby Siwash (Naswhito) Creek where they recovered a "certain amount" of gold. Of particular interest is that they uncovered evidence of hard-rock mining which was believed to date from the 1880s (Davis, 1924).

1929 - The Okanagan Copper Company carried out some 76m of tunnelling and cross-cutting in 1928-29. Gaul (1929) inspected the property and prepared a report for the Vancouver and Okanagan Syndicate.

1930 - Granby Mining and Smelting Co. acquired and dropped an option on the property. In the interim they carried out a trenching program (Malcolm, 1954). Cairnes (1931) describes "several hundred feet of trenching scattered over an area 1200ft (366m) by 800ft (244m)".

1956 - The property was optioned by New Jersey Zinc Co. who carried out a magnetometer survey and some bulldozer stripping (Lamb and Lund, 1964).

1962 – The property, now optioned by Highland Valley Mining Corp., was investigated with 275m of diamond drilling in six holes. Plans, dated late 1962, indicate the involvement of Consolidated Woodgreen Mines Ltd. in geological mapping and sampling

1963 – Empire Development Company Ltd. obtained an option on the property in April. Geological mapping and geochemical (copper) and geophysical (magnetometer and self-potential) surveys were followed by bulldozer trenching (Lamb and Lund, 1964).

1964 – Empire Development Company Ltd. completed 1027m of diamond drilling in 10 holes. They subsequently dropped their option.

1969 – The property was held as the Hugal claim group by Hudson Bay Exploration and Development Co. Ltd. An induced polarisation survey was carried out (Baird, 1969).

1970 to 1975 – Hudson Bay drilled seven holes (for 721m) on an IP anomaly (Osatenko, 1977).

1976 – The Goodenough property was staked by Cominco Ltd.

1977 - Cominco Ltd. carried out geological mapping and a detailed ground magnetometer survey (Osatenko, 1977).

1978 - Magnetometer and IP surveys were carried out in July (Scott, 1978), followed by geological mapping and a geochemical survey in September (Casselman, 1978).

1984 - No further work was done on the property by Cominco Ltd. who allowed the claims to lapse. Brican Resources Ltd. acquired the property by staking.

1985 - A trenching and sampling program was carried out, mainly over the sites of previous exploration work, in an attempt to confirm interesting gold values reported by earlier workers. This proved unsuccessful, possibly due to the inaccuracy of the old location data (K.L. Daughtry, pers. comm.).

1988 - One cored hole (63m) was drilled and sampled in October (Wynne, 1988).

The Goodenough property has lain dormant since 1988.

REGIONAL GEOLOGY

The Goodenough property, located west of Vernon, on the west side of Okanagan Lake, lies close to the eastern margin of the Quesnellia terrane. The terrane boundary in this area is represented by the west-dipping Okanagan Valley Fault (to the east) and the southwest-dipping Louis Creek Fault (to the north). The Okanagan Valley Fault is a major, low angle, crustal shear. Sense of movement on the fault is normal. It has been interpreted as an Eocene "detachment" fault (Tempelman-Kluit and Parkinson, 1986). The nature of the Louis Creek Fault is poorly understood.

The Goodenough property is underlain by rocks of the Devonian to Triassic Harper Ranch Group. This unit occurs as a northwest trending belt of arc clastics comprising volcanic-derived sedimentary rocks, minor flows and pyroclastics, and including Devonian to Permian limestone blocks (Wheeler and McFeely, 1987). This unit is overlain to the north by volcanics and sediments of the late Triassic to early Jurassic Nicola Group (Fig.1). Both units have been folded and faulted along northwest trending axes and regionally metamorphosed to lowermost greenschist facies.

Jurassic granodiorite of the Pennask-Okanagan plutonic complex intrudes the Harper Ranch Group about 6km south of the property.

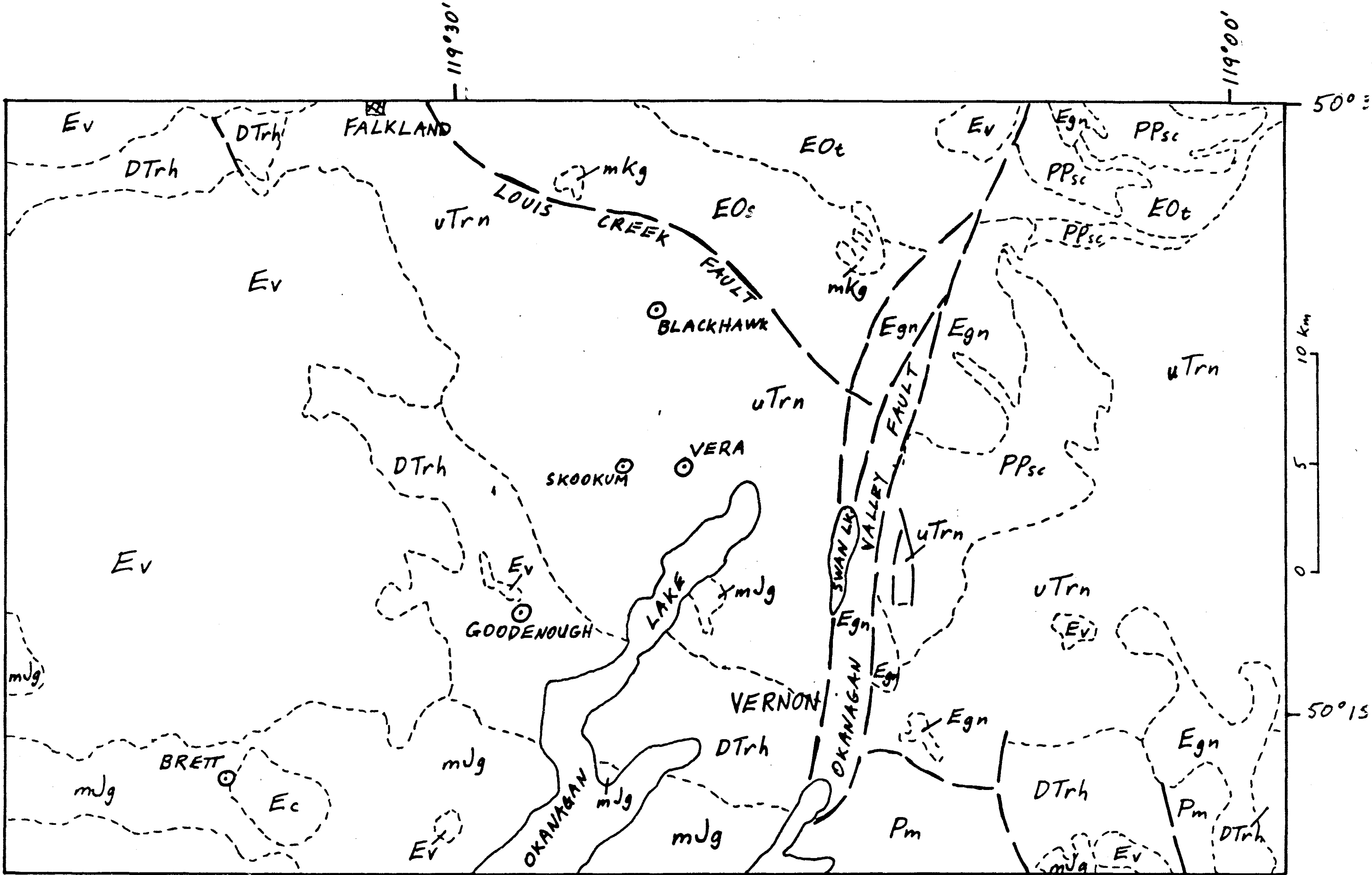

Figure 1. Regional geology of the ~~Vera~~ Goodenough area. Compiled from Okulitch (1979) and Okulitch (1989).

(for original see 'Vera')

EOCENE

Ev	Undifferentiated volcanic rocks; may include Kamloops Group.
Egn	"Okanagan Gneiss" (orthogneiss grading to mylonite)
Ec	CORYELL SYENITE and equivalent (syenite and quartz monzonite)

CRETACEOUS

mKg	Quartz diorite, granodiorite

JURASSIC

mJg	NELSON PLUTONIC ROCKS (granodiorite, quartz diorite, and granite)

TRIASSIC

uTrn	NICOLA GROUP (volcanic and sedimentary rocks)

DEVONIAN TO TRIASSIC

DTrh	HARPER RANCH GROUP (volcaniclastic sedimentary rocks, limestone, minor volcanics)

CAMBRIAN TO ORDOVICIAN

ЄOs	SICAMOUS FORMATION (argillite, phyllite, siltstone, greenstone)
ЄOT	TSALKOM FORMATION (greenstone, phyllite, limestone, ~~or~~ conglimerate)

?? PALAEOZOIC &/or MESOZOIC

Pm ~~PPsc~~	OKANAGAN METAMORPHIC COMPLEX (gneiss, schist, marble)

? PALAEOZOIC

PPsc	SILVER CREEK FORMATION (schist and gneiss)

- - - - Geological boundary

—— —— Fault

Gently-dipping volcanic and minor sedimentary rocks, equivalents of the Eocene Kamloops Group, unconformably overlie all older units in the area. They cover extensive areas of the Thompson Plateau to the west, and extend into the northwest corner of the Goodenough property.

An Eocene syenite stock intrudes Harper Ranch Group and Jurassic intrusive rocks about 12km to the southwest (Church, 1980).

On the property itself, the Harper Ranch Group rocks are pervasively intruded by plugs and sill-like bodies of diorite, both equigranular and porphyritic (Casselman, 1978).

PROPERTY GEOLOGY

Outcrop on the property is scarce and geological interpretation has historically been based mainly on trench exposures (now mostly caved) and drillhole data. Casselman (1978) provides a thorough description of the geology of the Goodenough property:

"The property comprises a sequence of northwest striking metavolcanics which are conformably overlain by an intercalated sequence of metasediments. Tertiary basalt flows and minor pyroclastics unconformably overlie the Palaeozoic rocks in the northwest corner of the property. In the central part of the property the volcanic and sedimentary rocks are extensively cut by a diorite plug and are locally cut by lamprophyre and basalt dykes. The metavolcanics which occur primarily in the northeastern part of the property include mainly andesite pyroclastics although locally andesite flows and dacite pyroclastics were noted. The dacites occur near the top of the volcanics and indicate a possible weak differentiation trend in the magmatic activity. The metasediments consist mainly of limestone with lesser concentrations of an intercalated package of calc-silicates, andesite tuffs, cherts and argillites. Locally within this package discontinuous stratabound horizons of chalcopyrite-magnetite-(pyrite) or chalcopyrite-pyrite-pyrrhotite iron formation were noted. The chalcopyrite-magnetite-(pyrite) mineralisation occurs in the Central Zone of the property while the chalcopyrite-pyrite-pyrrhotite mineralisation occurs in two localities located 750m southeast (Zone A) and 750m south (Zone B) of the Central Zone.

"A diorite plug occupies a significant area in the central part of the property and has extensively cut, altered and removed sections of the stratigraphy in this area including sections of the chalcopyrite-magnetite-(pyrite) iron formations and their hosting stratigraphy in the Central Zone. Other smaller diorite plugs occur scattered locally throughout the property. The diorite bodies are considered to be coeval with the development of the volcanic pile and are thought to be subvolcanic equivalents to the andesite units. Lamprophyre and basalt dykes were also noted in the Central Zone of the property. These dykes trend northwest and cut all other rocks in that zone including the diorites. The basalt dykes are possibly genetically related to the Tertiary basalt units which occur in the northwest corner of the property. The age of the lamprophyre dykes is not known."

The mineralisation is primarily confined to calc-silicate/andesite tuff unit(s) within the metasediment section of the sequence. These rocks are dark green, medium to coarse-grained and massive. They comprise various proportions of calcite, pyroxene, garnet, diopside, actinolite, quartz and feldspar and commonly contain various proportions of chalcopyrite, magnetite, pyrite and pyrrhotite. Casselman (1978) interpreted the unit to be a mixture of andesite tuff and impure calcareous mud with intercalated cupriferous magnetite bands, "skarnified" and homogenised due to contact metamorphism by the diorite intrusions.

Legend

TB	Tertiary basalt ~~volcani~~ flows, minor pyroclastics.
LA	Lamprophyre dyke
DI	Diorite, ~~and diorite~~ some porphyritic
LM	Limestone (marble)
SK	Calc-silicate / andesitic tuff (skarn)
CH	Chert, cherty argillite
DV	Dacitic pyroclastics
AV	Andesitic pyroclastics
BV	Porphyritic augite basalt flows.
- - - -	Geological boundary
◪	Shaft
//	Adit
)(	gate
——	Dyke

Screens?

UN — Undifferentiated diorite, limestone, calc-silicate, and chert

leave blank.

(letraset)

Screen at least the SK

Note: Sheared zones are classified as follows:

Class 1	Lenses and wedges of rock separated by closely spaced (generally < 50mm), subparallel, clay lined and/or slickensided joints
Class 2	Completely weathered rock
Class 3	Crushed material, well-graded soil
Class 4	Clay

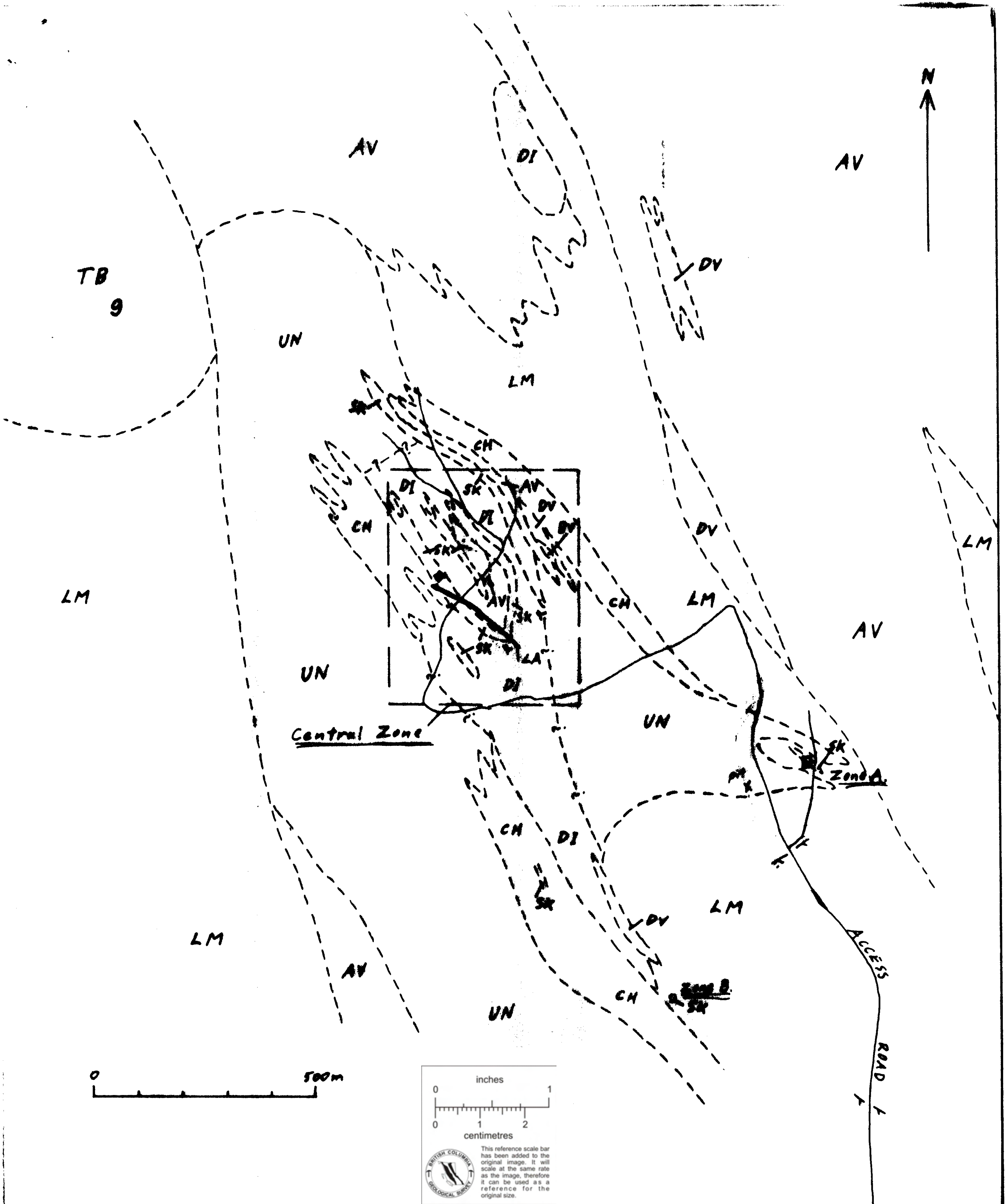

Figure 2. Geology of the Goodenough Property. (Adapted from Cominco Geology Plan, 1981 and Osatenko, 1977.)

The diorite is dark to medium green, medium to coarse-grained, equigranular or porphyritic in pyroxene and feldspar, and massive. Recent drilling (Wynne, 1988) has cast doubts on the identification and hence the distribution of the diorite, as some rock previously mapped as porphyritic diorite has, in fact, proven to be a porphyritic metavolcanic (andesite tuff). This unit varies subtly in composition and texture across strike, and grades into a mineralised zone close to a diorite contact.

Mineralisation at the southeast zone (Zone A) and the south zone (Zone B) occurs in a metasediment package similar to that at the Central Zone. However, diorite is absent and the sediments are bounded by massive limestone units.

The general trend of units on the Goodenough property is about 325°, with a probable steep northeast dip. However, it is not known whether the various showings on the property, with their similar host stratigraphies, occur at different stratigraphic levels or are hosted by one folded unit. Ground magnetics suggest that the responsive unit in the Central Zone (the mineralised tuff) is folded about an axial plane with a trend of 325°; the fold axis is believed to plunge steeply (Osatenko, 1977).

Older reports note the presence of shear zones, both northwest-trending (?axial plane shears) (Lamb and Lund, 1964) and north to northeast-trending (associated with sparsely mineralised quartz veins distal to the contact metamorphic aureole) (Cairnes, 1931), as well as west-striking mineralised quartz veins (Norris, 1900).

MINERALISATION AND ALTERATION

Earliest reports of the Goodenough property refer to both iron-copper mineralisation and quartz veins carrying galena and free gold with minor copper (Norris, 1900).

Later reports (Nichols, 1929; Cairnes, 1931; Lamb and Lund, 1964) describe a structural control on ore distribution. Certainly, in a small adit at the southeast zone (Zone A) showing, the massive pyrrhotite-pyrite-chalcopyrite mineralisation coincides with the intersection of two or more prominent shear zones.

The main showing on the property (the Central Zone) was first interpreted as intrusive contact-related (skarn) by Cairnes (1931), but with north to northeast structural control on the main mineralisation.

Osatenko (1977) was the first to consider the deposit to be "stratigraphically controlled and related to volcanic processes".

The stratabound nature of the deposit(s) is now generally accepted and its similarities with the Craigmont Cu-Fe skarn are quite evident. Craigmont (and by analogy, Goodenough) is considered primarily a volcanogenic copper-iron deposit with a skarn overprint (Morrison, 1980). However not all writers agree, and a porphyry-related skarn genesis remains a possibility (Cox and Singer, 1986).

Central Zone

Mineralisation at the Central Zone comprises stratabound, massive to semi-massive lenses of magnetite with disseminated blebs of chalcopyrite and pyrite in a zone 1 to 7m thick (Casselman, 1978), and at least 600m long although it is apparently somewhat discontinuous. Minor bornite, chalcocite, and galena have also been reported (Osatenko,1977; Cairnes, 1931).

Alteration of the host metasediment package comprises skarn development with some quartz-calcite veining in the calc-silicate/andesite tuffs, and silicification and sericitisation of the argillites and cherts (Casselman, 1978). Osatenko (1977) also describes well-developed chlorite and epidote alteration in most units of the host rock package.

Copper grades range from 0.75kg/t to 18.4kg/t (typically 5 to 10kg/t) in the main horizon, and from less than 0.1kg/t to 5kg/t in the adjacent diorite; silver and gold values are highest in the tuff, with up to 3.5g/t silver and 0.23g/t gold; tungsten is uniformly low at less than 2g/t Osatenko (1977). Recent drilling by Brican Resources Ltd. intersected 6.7m of 5.88kg/t copper and

0.19g/t gold in andesite tuff with quartz-calcite fracture fillings (Wynne, 1988).

Old reports indicate significant gold and silver values in the Central Zone (from nil to 6.86g/t gold and nil to 54.9g/t silver (Davis, 1924)) although the source of the samples is uncertain. They also refer to gold values associated with quartz veins. However, quartz veins other than the veinlets noted in the host tuff and diorite are not known on the property.

The diorite on the property is generally fresh and unaltered except for minor chloritisation of the mafics. However, in the Central Zone it is commonly variably sericitised and silicified, and weakly mineralised with disseminated and veined pyrite and chalcopyrite for about 10m where it is adjacent to a chalcopyrite-magnetite-(pyrite) showing (Casselman,1978). This has led to the interpretation that the sulphides and alteration in the diorite relate to contact with the iron formation during intrusion. However, Osatenko (1977) considered the sericitic alteration not to show any correlation with the major mineralisation, but to be more pervasive albeit variable. (About 500m northwest of the Central Zone the diorite is highly sericitised and pyritised.) Assay results reported by Wynne (1988) show that copper values for the diorite close to the mineralised tuff tend to be lower than those for diorite several metres away. This contradicts the observations reported by Casselman (1978) and, although based on only one drillhole, tends to weaken one of the main arguments supporting a volcanogenic genetic model.

Southeast Zone (Zone A)

This zone is located about 750m southeast of the Central Zone. Exposure in an old adit reveals a 1.5m thick massive pyrite-pyrrhotite lens with disseminated blebs of chalcopyrite. Also in the southeast zone, calc-silicate (skarn) carrying abundant coarse-grained disseminated to massive pyrite and lesser disseminated chalcopyrite is exposed in an exploration pit about 135m south-southwest of the adit. Samples of this material yielded values of trace to 0.13g/t gold, 0.5 to 37.1g/t silver, 0.6 to 34.4kg/t copper and 0.1 to 0.8kg/t zinc.

South Zone (Zone B)

The south zone, located 750m south of the Central Zone, is represented by the trench exposure of a 2m thick zone of disseminated and veined chalcopyrite and pyrite. This occurrence coincides with a prominent IP anomaly.

EXPLORATION POTENTIAL

Despite its long history of exploration, the stratigraphy and structure of the rocks beneath the Goodenough property are still poorly understood. The disruptive effects of the diorite intrusion, the homogenisation of lithologies due to metamorphism, and the lack of outcrop all conspire to hinder interpretation.

Whether the repetition of mineralised zones can be entirely or partly attributed to folding has not been resolved. Hence the number of mineralised units and the lateral extent of mineralisation remain undefined, as does the depth of mineralisation.

Soil geochemistry (for copper) and magnetometer and induced polarisation coverage of the property is fairly extensive. Only the magnetite-rich Central Zone mineralisation produced a magnetic response. However, a number of IP anomolies coincide with copper soil anomalies in the southern half of the property and, as these lie in an area of generally favourable stratigraphy, they are considered prospective.

Old reports of gold associated with quartz veins and the existence of some significant gold and silver assay results provide encouragement for precious metal prospecting on and near the property.

If the Goodenough deposits are, in fact, volcanogenic in origin, their existence in the area enhances the exploration potential of the Harper Ranch Group in general.

ACKNOWLEDGEMENTS

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