VERA (082LSW015) **By R.M. Barker**

(Fig. No.)

LOCATION : Lat. 50° 21' Long. 119° 22' (82L/6W) VERNON MINING DIVISION. Approximately 12km NW of Vernon.

CLAIMS : VERA 1-6, GOLDEN ZONE 1-3, GLORIA 1.

ACCESS : From Vernon via Kamloops Road (Okanagan Highway), then south along Westside Road for 3km. Final access is through farming property on the western side of Westside Road, requiring 4-wheel drive on farm and mining tracks for 4km.

OWNER : VERA SQUINAS, CANOVA RESOURCES LTD., ENVIROWASTE INDUSTRIES INC.

OPERATOR : CANOVA RESOURCES LTD. / ENVIROWASTE INDUSTRIES INC.

COMMODITIES : Silver, Gold.

INTRODUCTION

The main showing at the Vera property is a mesothermal-style quartz vein carrying significant base and precious metal mineralisation. The Vera vein is one of a number of comparable deposits scattered along the western side of Okanagan Lake, west of Vernon. Minor production was recorded in the mid-1920s. The Vera property was previously known as the "Octagon".

EXPLORATION HISTORY

The area west of Okanagan Lake has a history of minor placer activity dating back at least as far as the 1870s, and of lode-metals prospecting as early as the 1890s. However, no placer mining has ever been recorded for the Irish Creek drainage in which the known mineralisation at the Vera property lies.

The Vera vein was discovered in 1923. An open cut and short incline were developed, and 1.8t of ore shipped. The recovery grade was 34g/t gold and 2811g/t silver (B.C. Minister of Mines, 1955). No record exists of any further work on the property until 1969.

1969 - The Vera vein was almost certainly covered by the May group of claims owned by Silver Post Mines Ltd (subsequently known as Brown-Overton Mines Ltd), but no mention of the showing was made in assessment reports of the time. Exploration effort was concentrated on the May

(Jedi) showing located about 1.7km to the south-southwest. An incomplete magnetometer survey carried out over part of the May group did not extend over the Vera showing (Kikuchi and Venkatarami, 1970).

1980 - The property was inspected and reference made to rock sampling and assay work done by Thunderbird Resources Ltd (Daughtry, 1980). A limited soil geochemical survey was carried out (Daughtry, 1986).

1985 - The acquisition by Tri-Pacific Resources Ltd of an option to the Vera property was announced, and small, high grade, silver production program was reported to be in progress. The discovery of visible native gold was also reported (George Cross News Letter, Nov.15, 1985).

1986 - The Vera property was inspected and a summary report on the history, geology and mineral occurrences was prepared by E. Livgard (Daughtry, 1986). Surface stripping of the vein over a length of 12m was carried out by Tri-Pacific Resources Ltd (George Cross News Letter, Apr.15, 1986).

1987 - Canova Resources Ltd carried out a brief program of geological mapping and prospecting (Shaw, 1988), as well as a limited geophysics program comprising magnetometer and EM surveys. These surveys proved inconclusive (Grond, 1988).

1988 - In the spring and early summer, limited geological mapping and prospecting, rock chip sampling and soil geochemical survey, and a detailed VLF-EM survey, all commissioned by Canova Resources Ltd, were carried out (Grond, 1988). In June, Canova and Expeditor Resources Group Ltd announced a joint venture agreement to explore the Vera claims. In July-August, a trench, 60m long and up to 5m deep, was excavated by drill and blast methods, exposing a long-section through the shallow-dipping vein. The exposure was mapped in detail and extensively sampled for assay (Grond and Thompson, 1988).

The property has lain dormant since 1988. Expeditor Resource Group Ltd. changed name in 1990 to Envirowaste Industries Inc.

REGIONAL GEOLOGY

The property, located northwest 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.

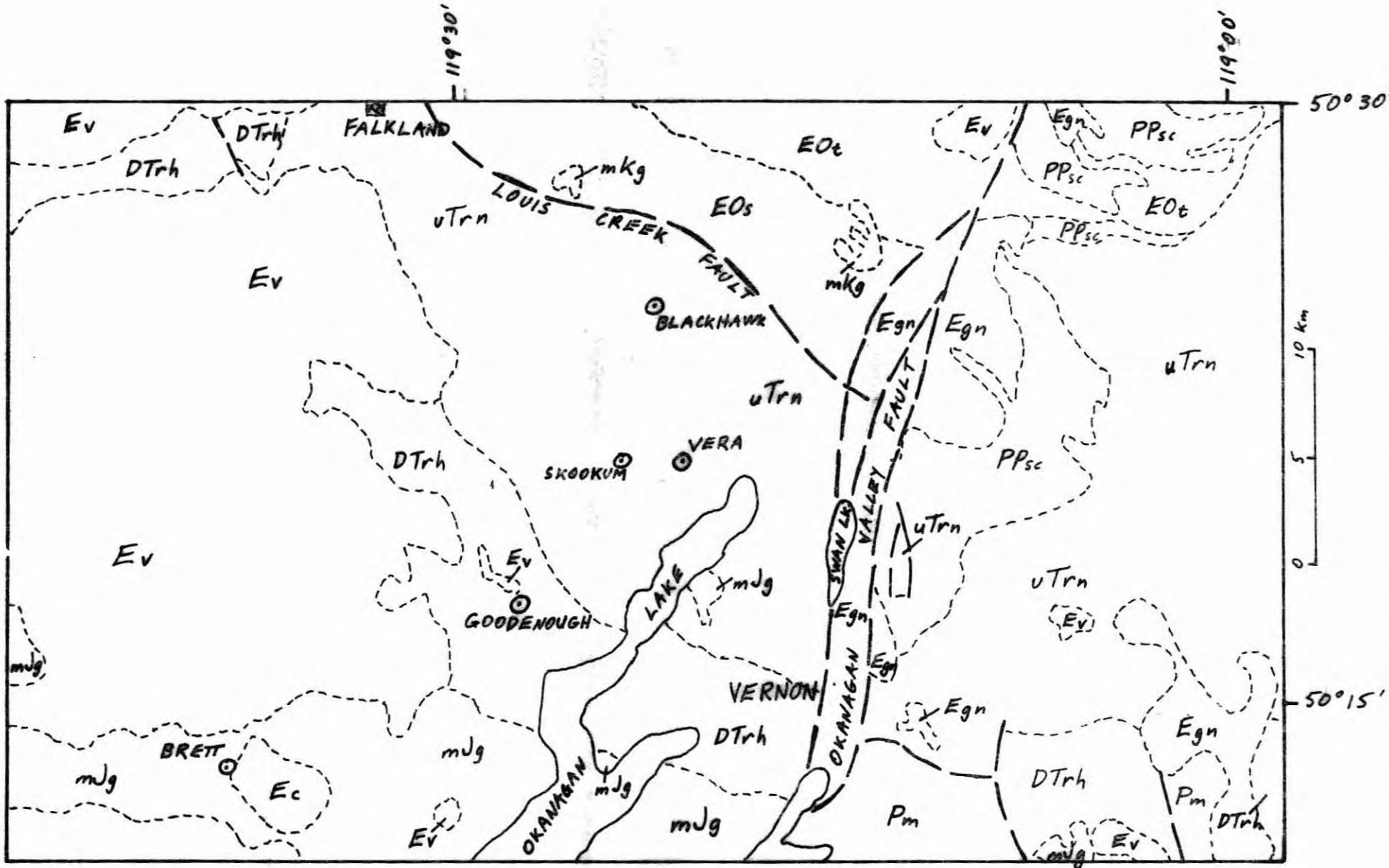


Figure 1. Regional geology of the Vera area. Compiled from Okulitch (1979) and Okulitch (1989).

The Vera property is located in a northwest-trending belt of sediments and volcanics assigned by Okulitch (1989) to the Triassic to Jurassic Nicola Group. To the southwest they rest unconformably on the Carboniferous to Permian Harper Ranch Group, while to the north they are faulted against Lower Palaeozoic rocks of the Sicamous Formation (Fig. 1). The unit is overlain by volcanics and minor sediments of the Eocene Kamloops Group which, in this area, is preserved only as scattered outliers. Wheeler and McFeely (1987) place the faulted northern boundary of the Nicola Group (the Louis Creek Fault) to the south of the property, and group the sediments and volcanics extending north from the fault into the Shuswap Lake area as part of the Upper Proterozoic to Palaeozoic Eagle Bay Assemblage.

The Jurassic Pennask-Okanagan plutonic complex crops out within about 15km south of the property; Cretaceous satellite stocks of the Salmon Arm pluton intrude the Sicamous Formation about 10km to the north. Approximately 20km southwest of the property an Eocene syenite stock is associated with epithermal gold mineralisation at the Brett property (Meyers, 1987; Church, 1980). Dioritic intrusive rocks have been mapped about 2.5km west of the property (Grond, 1988).

PROPERTY GEOLOGY

The Vera property is underlain by a northwest to west-northwest striking, steeply-dipping sequence of argillites intercalated with basaltic and andesitic tuffs and minor flows. The tuffs are mainly mafic crystal tuffs with lithic fragments up to 50mm in diameter. This sequence is cut by numerous feldspar porphyry dykes ranging from 2 to 100m wide (Grond, 1988). The Vera vein is hosted in one such dyke. Mapping by Grond (1988) shows the dykes to be generally concordant with the sediment-volcanic sequence.

The host dyke is about 100m wide, and comprises grey, quartz-feldspar (dacite) porphyry, with 15 per cent white potassic-altered feldspar phenocrysts and 35 to 40 per cent clear, glassy, quartz phenocrysts; it carries about 1 per cent disseminated pyrite (Grond and Thompson, 1988). The rock is massive and well-jointed. The age of the dykes is uncertain - Okulitch (1979) indicates a possible Jurassic age; Daughtry (1980) suggests Tertiary.

The Vera vein comprises mainly massive, white, bull quartz, with some zones of banded white and grey bull quartz. Ribbon texture is evident in some vein material (Dowling and Morrison, 1989). Some evidence for at least two phases of quartz deposition exists in the two quartz types mentioned above, the rare occurrence of cross-cutting veins, and the presence some minor quartz-calcite veins. A few small vughs lined with coarsely-

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

EOs — SICAMOUS FORMATION (argillite, phyllite, siltstone, greenstone)

EOT — TSALKOM FORMATION (greenstone, phyllite, limestone, ~~or~~ conglomerate)

~~?~~ PALAEOZOIC &/or MESOZOIC

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

PPsc — SILVER CREEK FORMATION (schist and gneiss)

Geological boundary

Fault

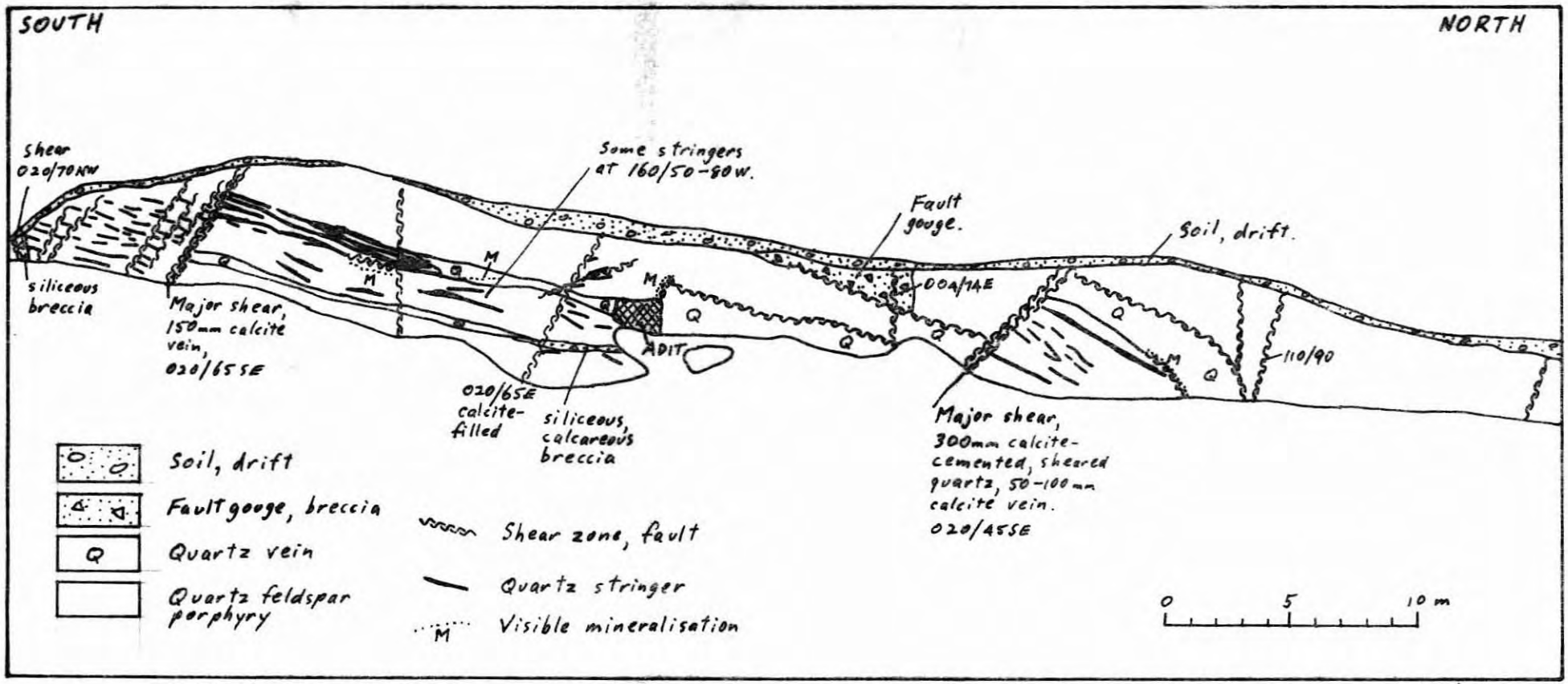


Figure 2. Vera property — sketch of trench wall. Adapted from Grond & Thompson (1988).

Plate. 1. Vera exploration trench, showing faulted quartz vein.

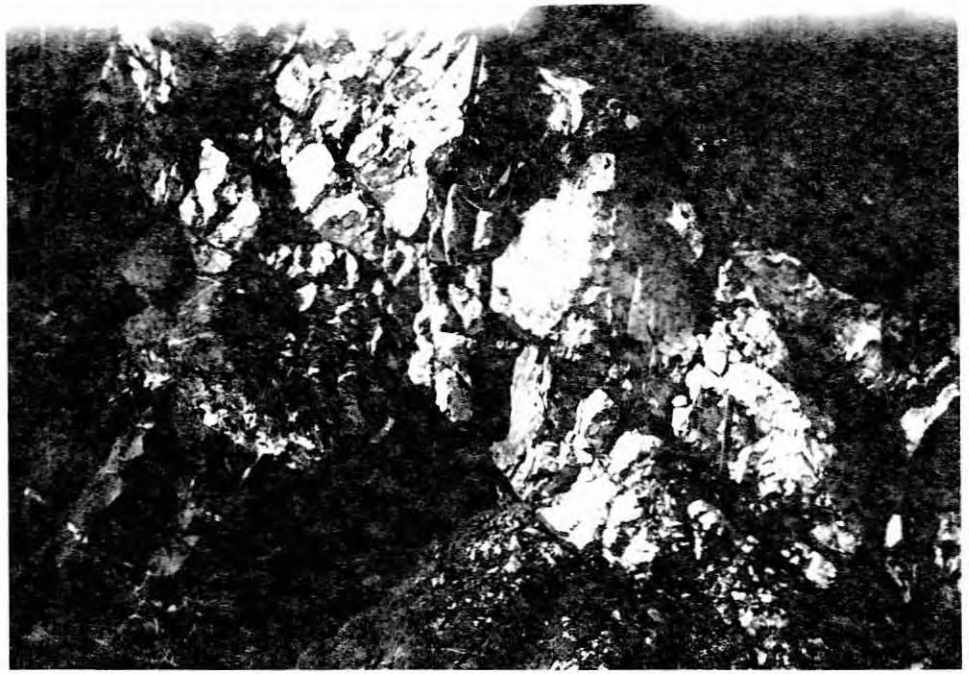
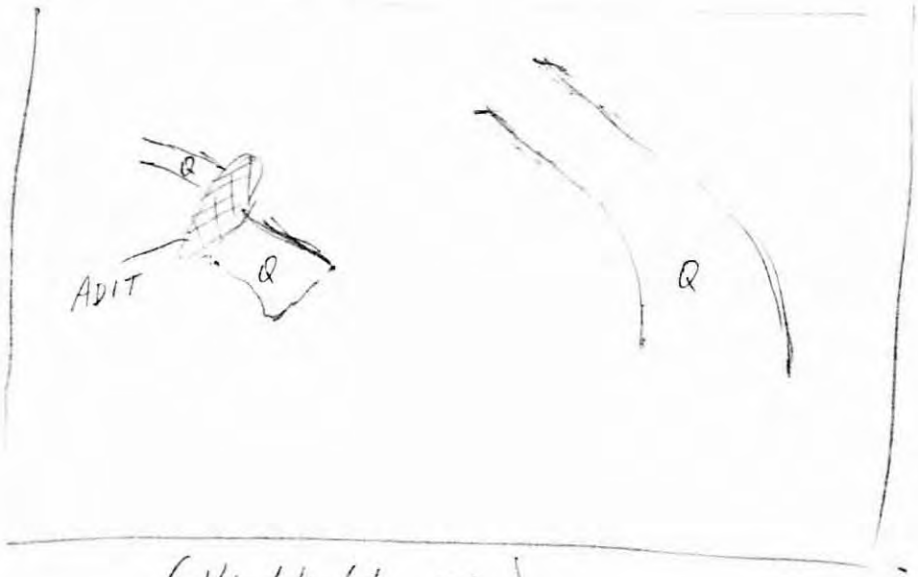


Plate 2. Vera quartz vein; quartz stringers in footwall



(Highlight vein)

crystalline quartz were observed, and drusy quartz lined vughs have been reported (George Cross News Letter, Nov.15, 1985; Jun.9, 1988).

The vein, where exposed in the exploration trench, strikes approximately north-northeast and dips west at 25°. At the northern end of the trench, it appears to roll over to a steep northerly dip. Prior to the trenching program the vein was also exposed in a road cut a short distance to the east and several metres lower in elevation. That part of the vein strikes southwest and dips vertically; it was interpreted by Shaw (1988) as a "feeder" to the main vein.

The Vera vein pinches and swells dramatically, ranging in width from 0.3 to 2.0m (Fig.2). Quartz stringers occur in the footwall; most are subparallel to the main vein but some narrow, steep, west-dipping stringers are also evident. As the main vein narrows towards the southern end of the trench, the abundance of stringers increases until, at its southern limit, the vein is represented by an intense stringer zone.

Shearing has occurred along much of the hanging wall contact and, to a limited extent, on the footwall contact. A series of moderate to steep, east to southeast dipping, normal faults give the vein a step-like pattern (Fig.2). Most of these faults carry abundant calcite in veins up to 150mm thick. The calcite is mostly coarsely crystalline and displays classic open space-filling textures such as crustiform and laminated vein-forms and

Spectacular assay values have been reported for grab samples rich in sulphides:

A 1m channel sample taken along the strike of a 50mm wide sulphide-rich quartz stringer gave 4.9g/t gold, 941.7g/t silver, 14.96kg/t copper and 24.02kg/t lead (Grond, 1988). Selected grab samples have yielded values as high as 250g/t gold and 74 777g/t silver (GCNL, Jun.9, 1988) and 4.99g/t gold, 5090g/t silver, 8.03kg/t copper, 110.76kg/t lead and 4.77kg/t zinc (Grond, 1988).

Systematic channel sampling of the quartz vein and stringer zones, carried out by Grond and Thompson (1988) in the exploration trench exposure, illustrates the sporadic nature of the mineralisation:

	Gold (g/t)	Silver (g/t)
Maximum value	2.90	2330.0
Minimum value	detection limit	1.2
Mean	0.48	301.6
Median	0.04	23.6

(19 samples assayed)

The host porphyry contains about 1 per cent pyrite (locally up to 3 per cent). Assays yielded gold values up to 0.05g/t and silver values of 0.3 to 4.0g/t (Grond and Thompson, 1988).

Alteration attributable to the mineralising event(s) is limited to localised patches of coarse-grained sericite adjacent to the vein. Pervasive intense chloritisation of the tuffaceous rocks on the property, as reported by Grond (1988), may be part of the widespread greenschist facies metamorphism which affected the Jurassic and older rocks of the region.

EXPLORATION POTENTIAL

The Vera vein appears to die out towards the southern end of the exploration trench. However, the vein has not been traced to the northeast, nor has it been investigated at depth by drilling. Tracing of the vein is made difficult by the obvious faulting in the area and by the paucity of outcrop.

The intercalation of more and less-competent lithologies creates potential for the development of tensional structures which can host thickened portions of cross-cutting veins. Hence, tracing the Vera vein across lithologies may provide enhanced exploration targets.

The change in orientation of the vein at the northern end of the trench suggests the presence of a fold. A "saddle reef" model may, therefore, be applicable to the Vera vein, in which case the axial plane (as well as other possible axial planes in the area) would provide a structural control for exploration.

Soil geochemical and VLF-EM surveys have had limited success - a number of indistinct northwest-trending anomalies were located in the Vera property area. None of these has been tested further.

ACKNOWLEDGEMENTS

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