

# 5

## ECONOMIC GEOLOGY

Traditionally the rocks of Tertiary basins of the southern interior of British Columbia have been known principally for their coal deposits. These rocks have also been noted for an abundance of zeolite minerals, some perlite, and opal and agate localities. However, in recent years, with the advent of advanced geochemical and geophysical methods of prospecting and precise methods of rock dating, it is now known that the Tertiary suite is important in the search for base metals. Tertiary uraniferous conglomerates have also recently attracted attention in southern British Columbia.

In the White Lake area a few small showings of ferrimolybdate are reported in the granite slide breccia of the Skaha Formation north of Green Lake. However, the Dusty Mac gold-silver discovery east of Skaha Lake has been the most interesting recent discovery in the area.

### THE DUSTY MAC PROSPECT

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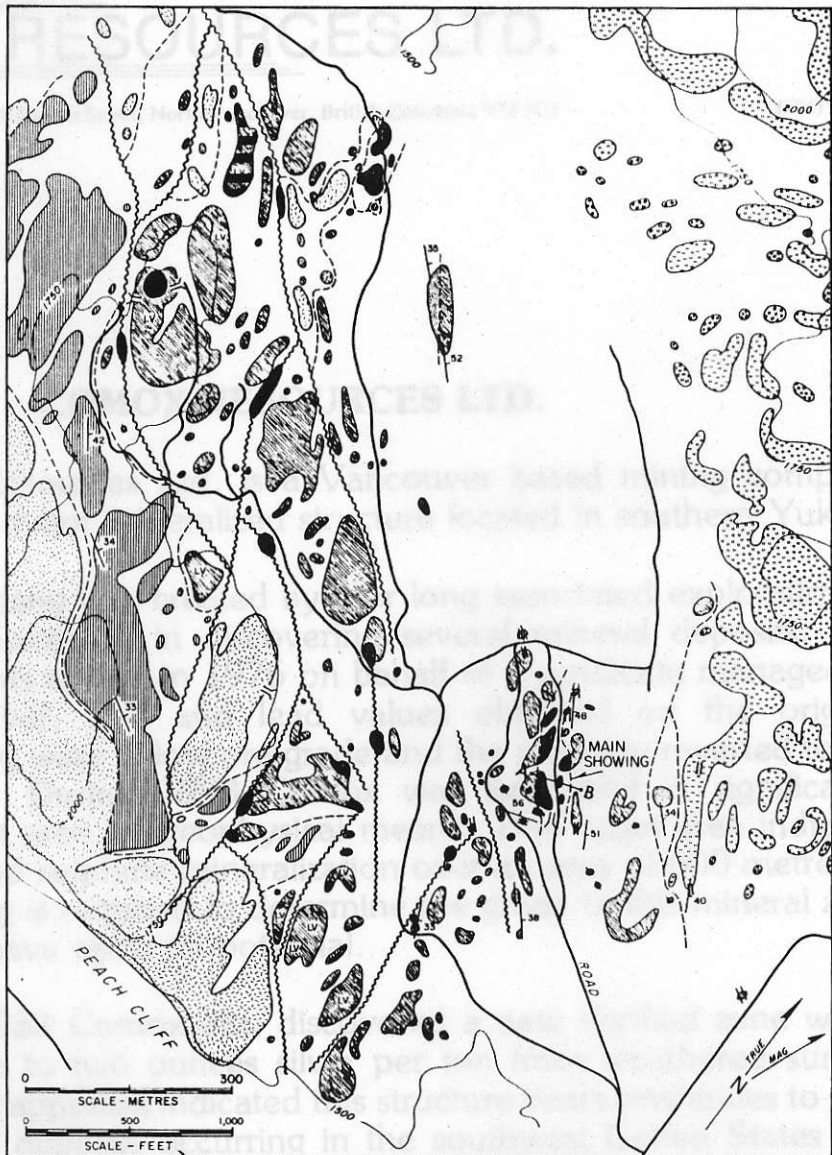
The Dusty Mac prospect is located about 1 mile east of Okanagan Falls (Figs. 1.2 and 5.1). The deposit consists of a lens-like zone of silicified Eocene volcanic rocks and sedimentary debris containing minor disseminated pyrite and native silver. Also, some quartz veins on the property carry minor bornite and chalcopyrite.

The host rocks belong to the White Lake Formation of the upper part of the local Tertiary section. These beds consist of light-coloured pyroclastic rocks, thick lahar deposits of feldspathic andesite, minor andesitic lavas, and some sandstones and carbonaceous shales. The older rocks in the immediate area belong to the Marama Formation comprising mainly massive rhyodacite lava well exposed on the high bluffs, known locally as Peach Cliff, overlooking the village of Okanagan Falls.

These units are on the south limb of a southeasterly trending syncline. The beds have variable dips ranging from about 30 to 55 degrees northeast. A strong cross-fracture system strikes about 010 degrees dipping about 80 degrees westerly almost perpendicular to the synclinal axis (Fig. 5.3).

In addition these rocks are cut by an important system of reverse faults. The system trends generally southeasterly, with interwoven easterly and southerly striking segments and splays. The direction and magnitude of movement on these faults are indicated at a number of points where large slices of Marama lava have been thrust outward and upward

Comox Resources Ltd. is preparing to drill a...  
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GEOLOGY BY B N CHURCH, 1970

**LEGEND**

- |                             |  |                         |   |
|-----------------------------|--|-------------------------|---|
| <b>WHITE LAKE FORMATION</b> |  | <b>MARAMA FORMATION</b> |   |
|                             | TUFF-BRECCIA / SANDSTONE, SHALE  |                         | DACITE LAVA, MINOR BRECCIA                                |
|                             | BLOCKY FELDSPAR PORPHYRY LAHAR, LAVA / SANDSTONE AND SHALE                     |                         | TECTONIC BRECCIA, SILICIFICATION, QUARTZ VEINS AND GOSSAN |
|                             | BLOCKY LAHAR WITH ACCESSORY DACITE FRAGMENTS, MINOR TUFF-BRECCIA AND SANDSTONE |                         | FAULT   |
|                             | GEOLOGICAL CONTACT   |                         | ROAD  |
|                             | TOPOGRAPHIC CONTOUR  |                         | GEOLOGICAL SECTION  |
|                             |  |                         | BUILDING  |
|                             |  |                         | PORTAL  |
|                             |  |                         | BEDDING   |
|                             |  |                         | LV LAVA   |

TOPOGRAPHIC BASE PROVIDED BY NORANDA MINES LTD

Figure 5.1. Geology of the Dusty Mac prospect, Okanagan Falls.

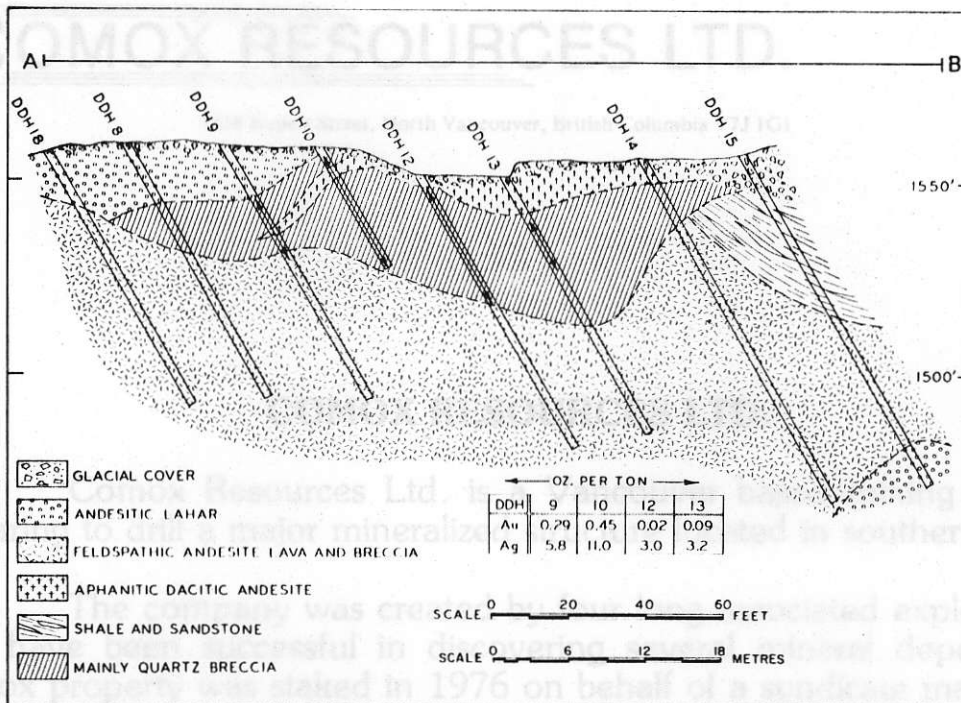


Figure 5.2. Diamond-drill hole section, Dusty Mac Mines Ltd.

from the core of the syncline through several hundred feet of White Lake strata. As in the White Lake basin, reverse faulting is thought to be the result of concentric folding and accommodation of the stratigraphic pile to bedding plane slip.

At Dusty Mac, mineralization appears to be largely controlled by the fault system. Quartz veins and gossans are present in or adjacent to most of the main faults.

The main mineralized zone, located in the east central part of the property, is a gently dipping lens of quartz breccia (Plate XVI) with varying admixtures of crushed andesite. The body is exposed over a length of about 700 feet striking roughly 140 degrees with a central cross-section width of about 160 feet and a maximum thickness of 30 feet. Surface sampling of this zone by the writer showed some disseminated native silver yielding erratic grades. Assays on five composite samples gave an average value of 0.47 ounce per ton gold and 11.3 ounces per ton silver and a range of 0.02 to 4.31 ounces per ton gold and 1 to 121.4 ounces per ton silver. A published statement by Dusty Mac Mines Ltd. indicates 67,790 tons of ore averaging 0.23 ounce per ton gold and 4.97 ounces per ton silver, according to calculations based on exploration up to December 1969.

A similar large lens of quartz breccia is located about 2,500 feet northwest of the ore zone. Preliminary testing of this body shows only a trace of gold and silver.

The large quartz breccia zones, including the main mineralized zone, are thought to be the result of the following events:

- (1) Development of dilations in major shears.
- (2) Filling of the dilations with quartz, accompanied by gold and silver mineralization.

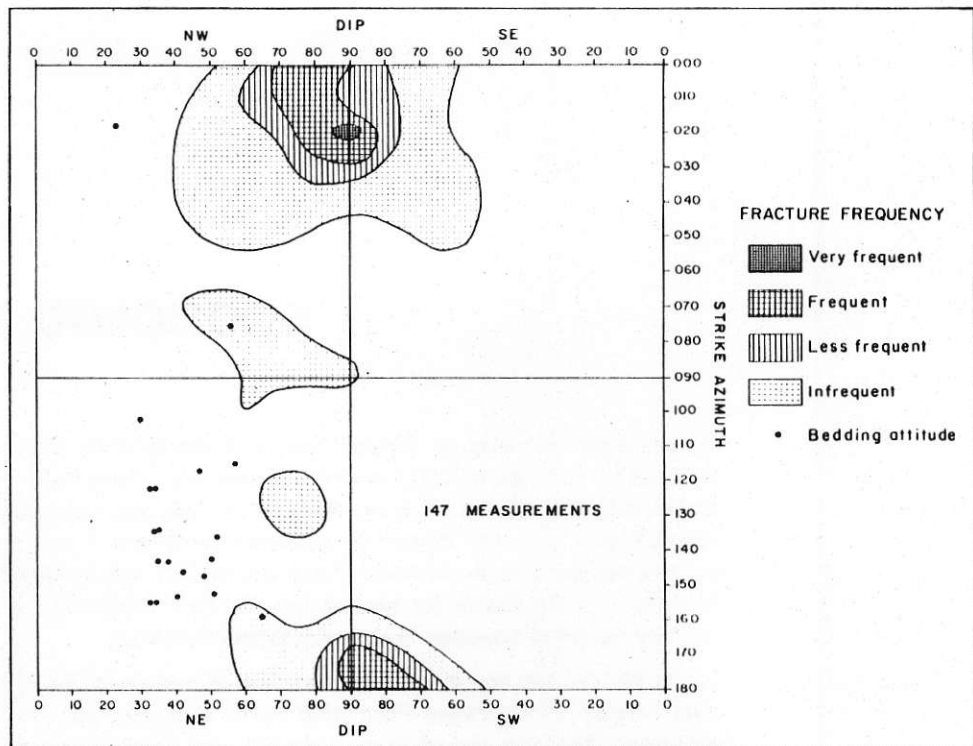


Figure 5.3. Fracture frequency plot, Dusty Mac prospect.

- (3) Late-stage movement in the shear zones resulting in brecciation of the quartz and intermixing of the quartz with crushed andesite wallrocks.

Work done on the property to the end of 1970 includes 52 diamond-drill holes totalling 7,610 feet, 101 percussion holes, 2 bulk samples, and 1 crosscut adit about 150 feet long.

**REFERENCES:** *Geol. Surv., Canada*, Map 627A, Okanagan Falls; *B.C. Dept. of Mines & Pet. Res.*, G.E.M., 1969, pp. 294-296; 1970, pp. 402-406.