British Columbia Geological Survey
Geological Fieldwork 1983

BILL PROSPECT
(94E/13)

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INTRODUCTION

The Bill prospect is located 135 kilometres southeast of Dease Lake at latitude 57 degrees 45 minutes north and longitude 127 degrees 45 minutes west, in the Liard Mining Division (Fig. 51). Access is by helicopter from either Sturdee Valley airstrip, which lies 70 kilometres to the southeast or the Hyland Post airstrip which lies 30 kilometres to the southwest. The claims (Bill 1, 2, and 3) total 43 units; they are owned by Cominco Ltd. but were operated in 1982 and 1983 by DuPont of Canada Exploration Limited. Most of the area of the claims lies above treeline. Surveys by Cominco in 1981 and by DuPont in 1982 outlined a large gold-arsenic soil anomaly.

The writer spent three days on the property in July 1983.

PROPERTY GEOLOGY

Basalt forms the base of the volcanic pile in the area of the property; it is overlain by a dominantly andesitic tuff sequence. The tuffs are overlain by a complexly intercalated sequence of carbonatized volcanic sedimentary rocks ranging in composition from andesite to rhyolite. No significant volume of intrusive rock was noted on the property.

Intercalated sedimentary and volcanic rocks that underly the claim group have been regionally metamorphosed to lower greenschist grade; most are now schist and phyllite. At least two phases of folding took place and boudinaging of quartz and/or carbonate lenses is common. The volcanic rocks are mainly tuffaceous, ranging in composition from andesitic to rhyolite; in part composition depends on the percentage of quartz eyes present. Locally there are flows of massive or pillowed basalt. The sedimentary rocks include weakly to moderately carbonatized siliceous siltstone; these are often intercalated with intermediate to acidic tuffs, crinoidal limestone, calcareous sandstone, and quartzite. A distinctive sequence of pelite and greywacke structurally overlies the volcanic sequence.

STRUCTURE

All the rocks on the claim group are foliated to some degree and the foliation has moderate dips. Boudinaging of quartz lenses or pods is common in more mafic units. Common carbonate ± quartz knots lie parallel to banding in well bedded crinoidal limestone. Kink bands in the sheared felsic tuffs and folding of boudinaged quartz knots and veins in basic tuffs indicates at least two periods of deformation.

MINERALIZATION AND ALTERATION

Gold with arsenopyrite occurs as late-stage fracture fillings in quartz ± carbonate veins and pods, as dry veinlets, and also as disseminations and stockworks in altered tuffs; arsenopyrite is the most abundant metallic mineral. Pyrite is ubiquitous in the altered tuffs with at least two stages observed. Chalcopyrite occurs in trace amounts. Carbonate veinlets carrying euhedral quartz grains and pyrite veinlets cut quartz

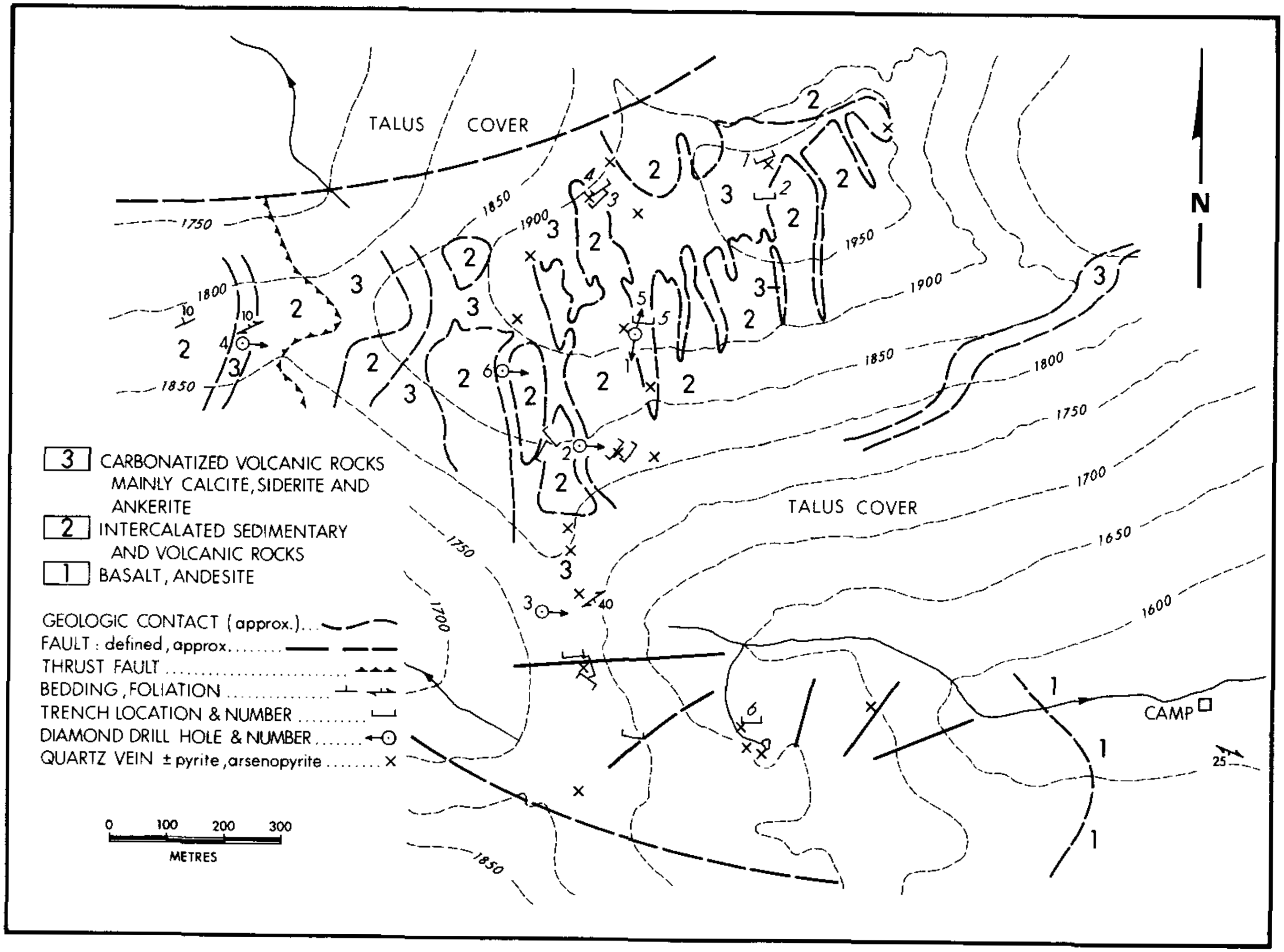

Figure 51. Sketch map of the Bill prospect, 94E/13 (after company plans).

± arsenopyrite veinlets. Quartz veins range in width from less than 1 centimetre to 1.5 metres. Most are steeply dipping and cut stratigraphy. Fault zones may be an important guide to mineralization. Apparently intense quartz-sericite alteration has replaced basic volcanic rocks along zones of structural weakness; gold mineralization is most abundant where quartz-sericite alteration is most intense. Quartz veins within quartz-sericite altered zones are most likely to be in the cores of the altered zones. Overall, arsenopyrite abundance does not correlate well with gold values; locally, however, the two are closely correlated.

WORK DONE

During 1983, DuPont diamond drilled approximately 1 175 metres in a six-hole program designed to test previous soil geochemical anomalies, to test geophysical anomalies, and to test analyses from hand-blasted trenches.

ACKNOWLEDGMENTS

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