

The property is underlain by a northwesterly trending sequence of moderately easterly dipping (average 30°) Takla Group (?) basic to intermediate subaerial volcanic rocks and intercalated volcanoclastics. Mineralization appears to occur mainly within or near a contact zone of a basic lava flow(s) and a series of volcanoclastic units and consists of chalcocite, bornite, chalcopyrite, and malachite-azurite in fracture fillings, irregular vein systems and as disseminations. Pyrite is locally abundant but for the most part is conspicuously absent. Hematite is much more abundant and scattered throughout. Small high-grade pods of massive sulphides exist with values up to 16% copper and 22 oz. per ton (757 ppm) silver. Mineralization appears to be further controlled by a major north-north-easterly trending fault and a series of numerous crosscutting faults. Assay results indicate an average Cu:Ag of approximately 1:1 (see table below) which suggests that the silver is tied up within the copper minerals.

Rock Types

A) Quartz Latite Dyke

- intrudes both the basic lavas and volcanoclastics.

B) Volcanoclastics

The volcanoclastic rocks exhibit extreme colour variations from a buff brown colour to brick red. Rock types include crystal tuff, lapilli tuff, lithic tuff, and agglomerate. Sedimentary textures preserved include:

- 1) graded bedding
- 2) channel grooving
- 3) load casts
- 4) convolute bedding
- 5) cross bedding
- 6) truncation and/or bed disruption near lava contacts.

Contact with lavas are generally sharp but locally exhibit rafting of fragments from the underlying basaltic lavas (autobrecciation).

i) Lithic tuff

Colour varies from mauve to red-brown to green and is blotchy in appearance. Grain size varies from fine grained clasts < 4 mm in size (mudstone) to clasts 2.5 cm in diameter (ash). Bedding is well developed but clasts occur at an angle to the bedding. Minor amounts of chalcopyrite exist as disseminations and small blebs. Hairline quartz-filled fractures are locally abundant.

ii) Lapille tuff

Fine sand-sized angular to subrounded volcanic fragments and quartz grains occur in a fine grained red-brown ash matrix. Hematite occurs scattered throughout. Fine grained graded bedding is poorly developed and fragments are elongated and drawn out. Trace amounts of chalcopyrite and bornite exist as disseminations. Calcite occurs in fractures and tension gashes are filled with quartz.

iii) Crystal tuff

Similar to other tuffaceous units but with a predominance of crystals, notably quartz.

iv) Agglomerate

Coarse grained intermediate volcanic rock with subangular clasts of variable composition healed by fractures of fine grained mudstone and locally by lava infilling. Clasts range in size from 5 cm (fragments) to 20 cm (bombs). Many clasts are elongated. Zones of volcanic breccia occur within the agglomeratic unit. Chalcopyrite and bornite locally (3-6%) are disseminated replacing clasts of volcanic breccia.

Basic Lavas

Basic lavas include grey to red coloured andesite - basalt. Flow tops in contact with volcanoclastics are commonly irregular and sometimes

exhibit autobrecciation.

i) Basalt

Its upper contact with volcanoclastics is irregular and tuffaceous material fills the irregularities. Bedded olive green zeolite occur in amygdules parallel to the contact and also occur as irregular clots filling open spaces and vesicles. The relatively fresh variety of basalt consists of scattered large green grains (pyroxene and/or relict olivine) set within a fine grained green matrix. Where hematitization has occurred the rock has a dark brown-red colour and pyroxene grains have been replaced by hematite. In places the red hematite outlines flow banding. Carbonate and zeolite amygdules are common. Very locally there are zones of abundant epidote. Locally the basalt has been brecciated and "balled" such that numerous variably sized fine grained basalt "balls" are cemented by tuffaceous and zeolitic material.

Mineralization consists of chalcocite, bornite and chalcopyrite occurring as blebs and clots, on breccia fragments, along fracture coatings, and very fine disseminations. Malachite and zurite exist on fracture coatings. Pyrite is locally present but is generally very minor. Trace amounts of galena have been observed. Bornite blebs replace relict green pyroxene crystals in amounts up to 5 percent.

ii) Andesite

The andesite is a very fine grained massive dark grey flow rock. Locally flow tops are brecciated. Hematite is disseminated in various amounts.

A possible intrusive equivalent of the andesite is a Microdiorite which may underlie the andesite.

Mineralized andesitic dykes with fine grained chalcopryrite and bornite on fractures intrude volcanoclastic rocks.

iii) Rhyolite

A light grey to white possibly tuffaceous rhyolite appears to be locally interbedded with the basalt. Flow banding and flow breccia textures are common. Chalcocite, bornite, and chalcopryrite are disseminated in the rock in amounts up to 5 percent.

iv) Gabbro

Coarse grained variety of lava is a granular gabbro which contains up to 2 per cent finely disseminated bornite and up to 5% chalcopryrite and bornite occurring as clots on small fractures and replacing mafic minerals.

Sample No.	Description	Gold ppm (oz/ton)	Silver ppm (oz/ton)	Copper %	Lead %	Zinc %	Cu Ag ratio
SPUR-2	volcanoclastic with dissem py + minor cpy	<1	12 (0.35)	0.05	-	-	0.14
SPUR-6	volcanoclastic	<1	11 (0.32)	0.02	-	-	0.06
SPUR-7	disseminated bn-cpy-chalcocite in andesite	<1	184 (5.4)	6.3	0.02	0.08	1.17
SPUR-7A	disseminated bn-cpy-chalcocite in andesite	<1	34 (1.0)	2.9	<0.02	0.07	2.9
SPUR-8	disseminated cpy-bn in contact between andesite and volcanoclastic	<1	14 (0.41)	0.89	<0.02	0.02	2.17
SPUR-9A	dissem + fracture filled cpy-bn in volcanoclastic	<1	243 (7.15)	11.4	0.02	0.03	1.59

Sample No.	Description	Gold ppm (oz/ton)	Silver ppm (oz/ton)	Copper	lead	Zinc	Cu Ag ratio
SPUR-10	Dissem+ fracture filled cpy-bn in volcaniclastic	< 1	31 (0.91)	1.5	< 0.02	0.01	1.65
SPUR-10B	dissem + fracture filled cpy-bn in volcaniclastic	< 1	22 (0.65)	0.56	< 0.02	0.02	0.86
SPUR-11	dissem. cpy-bn in volcaniclastic	< 1	10 (0.29)	0.41	0.06	0.01	1.41
SPUR-11A	dissem cpy-bn in volcaniclastic	< 1	30 (0.88)	0.80	< 0.02	0.02	0.91
SPUR-14	dissem bn+cpy in breccia	< 1	125 (3.68)	2.4	0.05	0.02	0.65
SPUR-15	massive bn in andesite	< 1	421 (12.38)	13.4	0.03	0.06	1.08
SPUR-16	massive bn in andesite	< 1	757 (22.27)	15.8	< 0.02	0.04	0.71
SPUR-17	massive bn in andesite	< 1	662 (19.47)	10.8	0.02	0.05	0.56
SPUR-19	massive bn in andesite	< 1	539 (15.85)	16.3	0.04	0.02	1.03

REFERENCES: B.C. Ministry of Mines & Pet. Res., Geological Fieldwork 1977, p. 68; Assessment Report 5681; Mineral Inventory 94D-103.