



NORTHWESTERN BRITISH COLUMBIA

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The effective field season extended from April through October. During this period of time several visits were made to current exploration camps, past exploration camps, and producing mines in northwestern British Columbia. Following are brief descriptions of the more important exploration ventures visited during the 1974 field season.

BERG (93E/14W)

The Berg porphyry copper-molybdenum deposit is located approximately 90 kilometres southwest of Houston. Canex Placer Limited, under an option agreement with Kenenco Explorations, (Western) Limited, conducted a diamond-drilling programme consisting of 19 PQ-size holes totalling 1,800 metres. Drilling on the property totals some 17,700 metres. From this summer's drilling Canex has 30 tons of rock for mill testing.

Relogging of previous core by company geologists this summer has added more detail to the geological picture at Berg.

REFERENCE

Minister of Mines, B.C., Ann. Rept., 1966, pp. 105-111.

SMOKE, NF (93E/14W)

This porphyry copper prospect is situated some 60 kilometres southwest of Houston. Noranda Exploration Company, Limited under an option agreement with Norwich Resources Ltd. followed up a geochemical and geophysical programme by drilling eight holes totalling 700 metres.

A body of quartz diorite-granodiorite, 1 mile in diameter, with an inner core of porphyritic trachyandesite measuring approximately 800 metres by 150 metres, intrudes Hazelton Group volcanic and sedimentary rocks.

Alteration zones are typical of those found in porphyry environment. An outer chlorite-carbonate zone grades into a sericite (\pm quartz) zone which in turn envelopes a secondary biotite-K-feldspar zone. The inner secondary biotite zone is the most important with regard to mineralization. Subeconomic amounts of chalcopyrite occurring as both disseminations and along fracture planes were found mainly in the trachyandesite although some was observed in the granodiorite. Pyrite is ubiquitous, in amounts averaging 3 per cent by volume.

SAM GOOSLY (93L/1W)

The Sam Goosly copper-silver-gold property is located approximately 40 kilometres southeast of Houston. The Goosly partners (Equity Mining Capital Limited and the Golden, Colorado firm of Congden and Carey) under an option agreement with Kennco Explorations, (Western) Limited renewed work on the property about the middle of March. During the next month, 14 diamond-drill holes of H-size core were drilled yielding a total footage of about 1,525 metres. This drilling programme confirmed the grade and tonnage of the deposit but also showed it to be more discontinuous than previously thought.

Present ore reserves quoted are 40,319,000 tons of 2.82 ounces silver and 0.026 ounces gold per ton and 0.35 per cent copper. The ore will be mined by two open pits, one containing approximately 32 million tons (North zone) and the other containing approximately 8 million tons (South zone).

In early July approximately 1,525 metres of backhoe trenching was completed in 12 trenches on the South zone. Geochemical sampling from the trenches showed significant values (for example, 2 ounces per ton silver). The trenching also showed some good examples of leached tetrahedrite.

Surveying of a new road and hydro line from Houston up Dungate Creek to the minesite was carried out during the summer.

Metallurgical testing continues to be carried out at Hazen Research Inc. of Golden, Colorado. The two minerals to be recovered, chalcopyrite and tetrahedrite, are present in very finely divided form, therefore making conventional grinding and flotation difficult. An initial production rate of 3,000 tons per day is anticipated.

REFERENCES

B.C. Dept. of Mines & Pet. Res., GEM, 1969, pp. 142-148; 1970, pp. 126-128,

SILVER QUEEN (NADINA) (93L/2E)

The Silver Queen gold-silver-copper-lead-zinc deposit, operated by Bradina Joint Venture, is situated immediately east of Owen Lake, 45 kilometres by road south of Houston. *Mining and milling operations were suspended in late 1973.*

The mine was reopened, after a closure of about 6 months, to implement both underground and surface exploration by diamond drilling. Three surface and six underground holes totalling approximately 760 metres were drilled. In addition, three crosscuts each about 75 metres in length, were driven into the hangingwall on the 2600 level. No significant discoveries were made from the surface holes. Some encouragement came from one of the underground holes which intersected a 30-centimetre vein containing sulphides including sphalerite, galena, and chalcopyrite.

The drilling phase ended on May 13 and the mine was closed soon thereafter.

REFERENCES

B.C. Dept. of Mines & Pet. Res., GEM, 1969, pp. 126-139; 1970, pp. 134-137; 1973, pp. 338, 339

HOT, CHIEF (DUNGATE CREEK) (93L/7E)

The Dungate Creek porphyry prospect is located 6 kilometres southeast of Houston. Canadian Superior Exploration Limited, under an option agreement with Chinook Resources Ltd., conducted a percussion-drilling programme consisting of six holes, each to a depth of 91 metres. Previous work on the property was done by Southwest Potash Corporation (1965), Normont Copper Ltd. (1966-67), and Noranda Exploration Company, Limited who drilled seven AQ wireline holes totalling 600 metres, in 1969. The 1974 Canadian Superior Exploration Limited programme was designed to test in more detail the induced polarization anomalies outlined previously. Although abundant pyrite was observed in chips of predominantly biotite-quartz-feldspar porphyry, no significant assay results were obtained. This Upper Cretaceous or Tertiary porphyry intrudes volcanic rocks of the Hazelton Group. Pyrite and subordinate chalcopyrite occur as thin fracture fillings and fine-grained disseminations both in the porphyry intrusion and adjacent volcanic rocks.

Alteration includes albitization, sericitization, kaolinization, and silicification.

The option was terminated by Canadian Superior Exploration Limited.

REFERENCE

B.C. Dept. of Mines & Pet. Res., GEM, 1972, pp. 384-390.

BIG ONION (93L/15W)

The Big Onion porphyry copper prospect is located 20 kilometres east of Smithers on Astlais Mountain. Canadian Superior Exploration Limited under an option agreement with Twin Peak Resources Ltd. completed four diamond-drill holes. Previously, Noranda Exploration Company, Limited, Texas Gulf Sulphur Company, and Cyprus Exploration Corporation had drilled nearly 8,500 metres of core on the property. All of this core was relogged by Canadian Superior geologists during the summer. In addition a detailed geologic mapping programme and a ground magnetometer survey were completed.

Copper (mainly chalcopyrite with minor amounts of bornite, native copper, and chalcocite) and molybdenum mineralization is known to be widely distributed in minor amounts in the Big Onion pluton, particularly between the two intrusive phases (quartz feldspar porphyry and quartz diorite porphyry) and the peripheral basic volcanic rocks.

Canadian Superior's work helped to further define the mineralization, It appears possible that the mineralization is structurally controlled by a fault zone trending northeasterly. As such the zone appears to be linear with higher grade North and South zones.

REFERENCE

Minister of Mines, B.C., Ann. Rept., 1966, pp. 83-86.

CRONIN MINE (93L/15W)

The Cronin silver-lead-zinc-gold-cadmium property is located in the Babine Range, approximately 30 kilometres northeast of Smithers.

Hallmark Resources Ltd. purchased the Cronin mine through an agreement with Kindrat Mines Ltd. in 1972. The mine has been producing high-grade ore intermittently since 1917 on a small scale. Very little exploration and development work has been carried out. In 1972 and 1973 Hallmark trenched and stripped the plateau above the underground workings. This area, referred to as the Upper showing, is at an elevation of 1,530 metres. Samples taken from the Upper showing returned interesting and significant silver and lead values.

Mineralization is contained in a complex zone of intrusive rhyolite, sericite schist, and intensely folded black argillite. The main body of light greyish green-coloured rhyolite is roughly 900 metres by 600 metres, elongated in a northerly direction. The major mineralization has been uncovered at or near the northwestern border of the rhyolite mass. The western border of the rhyolite body has been altered to a sericite schist with a strong southeasterly trending, steeply dipping foliation. In the vicinity of the Upper showings, the rhyolite is intrusive into argillite and in places contains pendants of argillite. The argillite is strongly foliated and locally intensely folded. A strong easterly trending quartz vein system with steep dips is exposed over an area having a length of 610 metres and a width of 150 metres. One major mineralized quartz vein having an average width of 0.6 metre was traced over a length of 80 metres.

Northerly trending diorite and lamprophyre dykes up to 2 metres in width intrude all other rocks.

The mineralization consists of argentiferous galena, sphalerite, and relatively minor pyrite and chalcopyrite. Boulangerite, freibergite, and arsenopyrite have been noted elsewhere in the mine area. The minerals are found in quartz veins, as massive sulphide lenses, breccia zones, or as fracture fillings in the rhyolite with little quartz. The major veins strike northeast. Structural controls are incompletely known.

The silver values are directly related to lead content, usually 2 ounces silver per ton for each per cent lead. Cadmium is associated with sphalerite, with 1 per cent zinc containing 0.15 per cent cadmium.

There appears to be some evidence of zoning between surface (1,530 metres elevation) and the lowest level of the mine (1,420 metres), as expressed by an increase in the zinc to lead ratio. Freibergite also appears to increase with depth. Leaching and oxidation on the surface appear to be significant.

The mill was started up on July 10 and ran for about 30 milling days at an approximate rate of 30 tons per day. Mining operations were carried out on the uppermost, or No. 1 level. Mining and milling operations ceased on September 6.

REFERENCES

B.C. Dept. of Mines & Pet. Res., GEM, 1973, pp 347, 348,
Minister of Mines, B.C., Ann Rept., 1949, pp. 94-98.

SUMMIT (93L/10W)

The Summit copper prospect is located near Burbridge Lake approximately 30 kilometres east-southeast of Smithers. Cities Service Minerals Corporation, under an option agreement with M. H. Chapman of Smithers, conducted a small diamond-drill programme consisting of two holes. The drilling tested a linear induced polarization zone outlined by a survey conducted earlier in the summer. Chalcopyrite mineralization occurs sparsely in foliated diorite, andesite tuff, and a quartz feldspar porphyry dyke. Pyrite is a significant constituent. A distinct propylitic alteration zone surrounds an inner quartz-sericite alteration zone.

REFERENCE

B.C. Dept. of Mines & Pet. Res., GEM, 1973, p. 345.

UTE (FRENCH PEAK) (93M/7E)

The French Peak silver-lead property is located on the southeast flank of French Peak, approximately 70 kilometres north-northeast of Smithers. Four local prospectors worked on a high-grade silver-lead vein between March and July 15. A total of 31.5 tons of hand cobbled silver-lead ore was shipped to Smithers.

The main vein consists of coarse-grained galena and tetrahedrite and is contained in shear zones in bedded volcanic rocks of the Hazelton Group. The vein has a maximum mineable width of 40 centimetres and was being mined from a trench approximately 40 metres in length, 1 to 3 metres wide, and 4 metres deep. According to the owners, the silver content of the ore averages 240 ounces per ton.

HOT (93M/7W)

This porphyry copper prospect is located on the north flank of Mount Thoen, approximately 70 kilometres north of Smithers. Cities Service Minerals Corporation conducted a small diamond-drill programme on the property which was optioned from Cobre Explorations Ltd. Two diamond-drill holes totalled 740 metres. Uneconomic amounts of chalcopyrite and molybdenite were encountered in feldspar-quartz-biotite porphyry and biotite hornfels. Chalcopyrite occurs as fracture fillings and as disseminations.

REFERENCE

B.C. Dept. of Mines & Pet. Res., GEM, 1973, p. 358.

SKUTSIL KNOB (93M/15E)

This copper prospect is located on Skutsil Knob in the Driftwood Range, approximately 100 kilometres north of Smithers. The property, optioned from Cominco Ltd. by Craigmont Mines Limited, includes several old showings on Crown grants which were explored in the early 1900's. Craigmont has drilled nine holes in 1973 and 1974.

Mineralization consists of high-grade chalcocite, chalcopyrite, and bornite in bedded pyroclastic volcanic rocks. The mineralization appears to be structurally controlled, occurring in fractures within the pyroclastic pile. The average grade of higher grade sections would assay 2 per cent copper over a width of 0.6 metre.

BRITISH COLUMBIA MOLYBDENUM (103P/6W)

This former producing molybdenum mine is situated 8 kilometres southeast of the head of Alice Arm.

Climax Molybdenum Corporation of British Columbia, Limited conducted a five-hole diamond-drilling programme in the open pit to further outline the ore potential which is estimated to be 48 million tons grading 0.20 per cent molybdenite.

Climax also made an offer to purchase the nearby Roundy Creek molybdenite deposit of United Chieftain Resources Ltd. where ore reserves are reported to be 1.5 million tons grading 0.347 per cent molybdenite.

REFERENCE

B.C. Dept. of Mines & Pet. Res., GEM, 1971 pp. 122, 123.

Minister of Mines, B.C., Ann. Rept., 1964, pp 30-36.

BEAR (94D/2W)

The Bear porphyry copper-molybdenum prospect is located on Tsaytut Spur west of Bear Lake, approximately 100 air-miles north of Smithers. The property is owned by Canadian Nickel Company Limited and was discovered in 1973 during a reconnaissance exploration programme. An intrusive complex measuring approximately 1,500 metres in length and 750 metres in width intrudes volcanic rocks of the Hazelton Group.

Three main intrusive rock types host the mineralization:

1. Syenodiorite.
2. Quartz monzonite porphyry.
3. Alaskite (aplite).

Chalcopyrite and molybdenite occur as disseminations on fracture planes, and in quartz veins in all three rock types. The oldest unit, the syenodiorite, is medium grained, equigranular, and grey in colour. Locally it is foliated near contacts with surrounding

volcanic rocks. The quartz monzonite porphyry, intrusive into the syenodiorite, ranges from equigranular to highly porphyritic in appearance. Phenocrysts of orthoclase range up to 5 centimetres in length and 2.5 centimetres in width. The youngest intrusive phase, the alaskite, is a medium to fine-grained light pink rock. Aplite and quartz stringers are associated with this intrusive phase, usually occurring as a stockwork.

The host volcanic rocks include varieties of tuff, andesite, agglomerate, and volcanic porphyry. A significant pyrite halo in the volcanic rocks surrounds the intrusive rocks.

Canadian Nickel Company Limited conducted a small diamond-drill programme on the property.

REFERENCE

B.C. Dept. of Mines & Pet. Res., GEM, 1973, p. 401.

CHAPPELLE AND LAWYERS PROPERTIES (94E/6E)

A short visit was made to the Chappelle and Lawyers gold-silver properties situated 30 kilometres northwest of the north end of Thutade Lake.

At the Chappelle property, Du Pont of Canada Exploration Limited, under an option agreement with Kennco Explorations, (Western) Limited, carried out a surface diamond-drilling programme to further test the potential of the gold-silver-bearing quartz vein.

Kennco Explorations, (Western) Limited conducted a small diamond-drill programme on the Lawyers property to test the zone of very fine-grained gold and silver mineralization explored previously by surface trenching.

REFERENCE

B.C. Dept. of Mines & Pet. Res., GEM, 1973, pp. 459, 460.