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LITHOLOGY

Quaternary

Q — Q — Unconsolidated Quaternary deposits, also represented by non-outcrop areas, and by unsubdivided lithostratigraphic map codes

Qbt — Basalt

Tertiary

Unsubdivided Dykes, Veins, and Breccias

T

Tmd — Mafic dykes
TfdgTqf — Felsic dykes and quartz-feldspar porphyry dyke
Tqv — Associated Tertiary quartz ± carbonate veins and breccias

Cretaceous

Polyphase Granite Batholiths and Stocks

K

Kgt — Granite
Kqm — Quartz monzonite
Kgd — Granodiorite
Kqd — Quartz Diorite
Kpt — Pegmatite

Cambrian

Unsubdivided Carbonate Rocks

ICc

I€ds — Dolostone
I€ls — Limestone
I€ls-ph — Interbedded limestone and phyllite
I€ma — Marble

Unsubdivided Calc-silicate Assemblages

I€sk — Skarns

Unsubdivided Interbedded Siliciclastic Rocks

I€s

I€qt — Quartz arenite (quartzite)
I€sc — Schist
I€gn — Gneiss
I€sc-gn — Interbedded schist, gneiss, and quartzite
I€sc-qt

SYMBOLS

- Bedrock outcrop area
- Lithological boundary, observed
- Lithological boundary, assumed
- 30 — Primary bedding, inclined
- 130 — Cross stratification, inclined
- 40 — Foliation: includes slaty cleavage, schistosity, inclined
- 40 — Banding: gneissosity, inclined
- Crenulation cleavage, inclined
- 80 — Jointing: inclined, vertical
- Faults, observed (dot indicates down throw side)
- Fault, assumed
- Lineament
- Anticline
- Secondary road
- Mineral deposit or prospect
- Sample Location

MINERALIZATION

Pb	Lead	Zn	Zinc
Ag	Silver	Cu	Copper
py	pyrite	po	pyrrhotite
gt	goethite	lt	limonite
st	siderite		

NOTES

Geology by: S.E. Amukun and G.W. Lowey, 1986

Open File:1987-1

Drawn by: Jeff Meek & Associates Ltd.

Approximate magnetic declination in 1986 was 30°23' east and decreasing 4.5' west annually

Elevations in metres above mean sea level, (contour interval 20 metres)

Funding by: Canada-Yukon Economic Development Agreement

GEOLOGY OF THE MEISTER LAKE MAP AREA (105B/8), RANCHERIA DISTRICT, SOUTHEAST YUKON

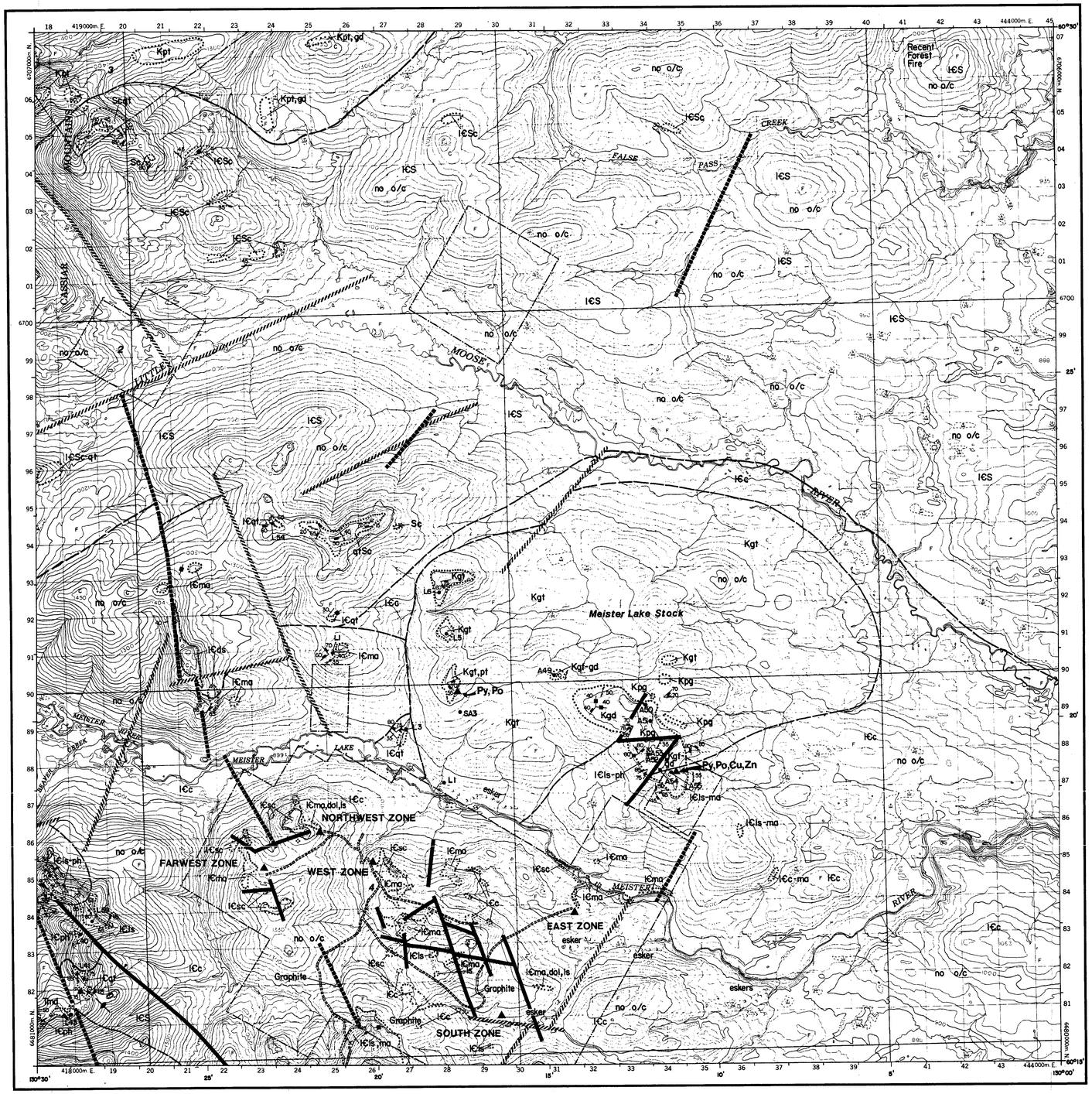
Scale 1:50,000 Échelle

Miles 1 0 1 2 3 Miles

Metres 1000 0 1000 2000 3000 4000 Mètres

Yards 1000 0 1000 2000 3000 4000 Verges

Canada



DESCRIPTION OF PROPERTIES

B. MEISTER LAKE MAP AREA (105 B 8)

GLEN CLAIMS (1)

Alex Black - Goldex Resources Inc. are recorded equal partners of the GLEN 3-4 claims, located astride the contact of the Meister Lake Stock and carbonate rocks. Several gossans with sericitic quartz veins containing pyrite, pyrrhotite and trace chalcopyrite, sphalerite and molybdenite occur here.

No record of exploration work within these claims is available, but several trenches and test pits were observed during the field mapping.

EAGLE CLAIMS (2)

Fairfield Minerals Inc. owns the EAGLE 1-32 claim property, which is located just north of the Little Moose River, south of the LOGAN 1-94 (3) claims that it also owns.

The claims are underlain by Lower Cambrian quartzo-feldspathic schists and gneisses, just south of the southern margin of the Marker Lake Batholith.

There is no record of exploration work on this property, but several trenches and test pits were found in this area of sparce outcrops, during the field mapping.

Fairfield Minerals - Getty Canadian Metals Joint Venture (3,4)

Fairfield Minerals Ltd. and Getty Canadian Metals Ltd. jointly own the LOGAN and MR properties. These properties have been operated by Cordilleran Engineering from 1979 to present.

i) LOGAN Claims (3)

The LOGAN 1-94 claims were staked in 1979 to cover a new discovery by Cordilleran Engineering (Verley and Sanguinetti, 1980) for Regional Resources. The property consists of zinc, tin, and silver mineralization in a vein system associated with a felsite dyke, both of which cut the Marker Lake Batholith. Chip samples across a 1.5 m wide, steep south-dipping vein average 5.29% Zn, 0.58% Cu, and 61.4 g/t Ag with trace lead, tin and tungsten. Grab samples of typical mineralized vein float assayed 8.15% Zn, 0.29% Cu, 171.8 g/t Ag, with selected high graded samples running to 35.88% Zn, 1.42% Cu and 560.6 g/t Ag. Samples of silicified and brecciated felsite assayed up to 1.52% Sn. All assays were reported by Verley and Sanguinetti (1980) of Cordilleran Engineering.

The property is situated astride the sharp fault contact between the Marker Lake Batholith and metamorphosed Lower Cambrian siliciclastic rocks. The metasedimentary rocks are made up of greyish-brown weathering quartzo-feldspathic, biotite and/or muscovite schist and/or gneiss, with interbedded quartzite (quartz arenite).

Ptygmatic pegmatite forms late sill-like bodies in the southwest part of the claim group.

The Marker Lake Batholith includes the following phases: a) Abundant medium-grained, equigranular, biotite and/or muscovite granodiorite to quartz monzonite, with late graphic textured pegmatite lenses which commonly contain large xenoliths of metasedimentary rocks. b) Rare medium-grained, equigranular, non-xenolithic and non-pegmatitic granodiorite.

Several north-northeast- and east-trending topographic linears appear to correlate with mineralization and may have developed through north-northeast compression (Verley and Sanguinetti, 1980, p.11).

A northeast-trending felsite dyke intrudes the Marker Lake Batholith on LOGAN 3 and 5 claims. This dyke is shattered, mineralized and is near disseminated, quartz vein stockwork, and brecciated polymetallic mineralization. The dykes are are aphanitic, pale brown, and commonly highly fractured and veined with quartz. Sphalerite and arsenopyrite are reported to occur in veins, and on fracture surfaces (Verley and Sanguinetti opit. cit.). Two stages of quartz veining are evident in the breccia. The main quartz vein, is in the centre of LOGAN 1-6, in a slight topographic east trending linear depression up to 20 m wide. The main vein is inferred to represent several parallel veins.

The LOGAN property covers the Main, East, and West showings. Most important is the Main Showing, outlined by coincident geochemical, geophysical and mineralogical anomalies. The zone defines an area 1200 m by 150 m in the centre of the claims. It consists of several parallel veins along easterly and northeasterly trends, with disseminated to massive sulphides, including arsenopyrite, sphalerite, tetrahedrite and lesser galena, chalcopyrite, and an unidentified tin mineral. Assys reported include a continuous chip sample of 72.2% Zn, 63.8 g/t Ag, and 0.73% Cu, and selected grab sample assays of 35.88% Zn, 372.7 g/t Ag, and 1.42% Cu, (Verley and Sanguinetti, opit. cit.).

The East showing, discovered by prospectors following up a strong anomalous soil lead-silver area over 200 m by 60 m, is hosted by altered granodiorite crosscut by quartz veins. Grab samples of disseminated tetrahedrite, galena, sphalerite, pyrite and arsenopyrite-bearing mineralization are reported to have assayed up to 811.5 g/t Ag, 6.2% Zn, 1.93% Pb, 1000 ppm Sn, and 1000 ppm As (Stammers, 1985a, p.14).

The West showing consists of arsenopyrite-pyrite mineralization hosted by a large chalceldony-quartz breccia. These rocks returned values up to 160 ppb Au, 24 ppm Ag, 1,465 ppm Pb, 2,000 ppm Zn, 5,500 ppm Sn (coincident with >1,000 ppm Ag), Stammers (opit. cit., p. 15).

ii) MR Claims (4)

The MR 1-140 claims were staked in July, 1981 to protect a new discovery of zinc and lead in float and in a gossan in phyllite. Grab samples of gossanous material from a trench in a 70 m long "kill zone" assayed up to 41.93% Zn (total) and 177.6 g/t Ag (Verley and Sanguinetti, 1981).

The claims are underlain by folded Lower Cambrian quartzite, intercalated graphitic and calcareous phyllites, and limestones (Verley and Sanguinetti, opit. cit.).

Thick-bedded, massive, fine- to coarse-grained, white quartzite (predominant), minor phyllite and highly graphic slates have total thickness of over 1200 m (Verley and Sanguinetti, opit. cit., p.8). These rocks are overlain by thin-bedded finely crystalline, grey argillaceous limestone, minor dolomite, calcareous slate and phyllite.

Folding is epparent at the outcrop scale and at a larger scale scale, on the South Zone where south-plunging anticline has been interpreted (Stammers, 1985b, p.15). Faulting is indicated by slickensides and prominent topographic linears.

Three mineral occurrences occur on the MR claims. The East and West Showings were discovered prior to December 1981. The East Showing is a weathered zone above siliceous, gossanous phyllite, near sericitic phyllite, and within 20 m of an argillaceous limestone. Selected grab samples assayed up to 5.79% combined Pb-Zn. Graphitic phyllite is exposed downstream, approximately 100 m (Stammers, 1985b, p.11).

The West Showing(also referred to as the "Kill Zone" or "Poison Patch") consists of zinc-rich ferrite gossan approximately 70 m long. This zone coincides with a vague lineament that extends for 1300 m to the northwest. Trenches cut into the crudely banded limonite-containing smithsonite and hemimorphite assayed respectively 41.93% Zn and 34.37% Zn; 0.08 and 0.063 Pb; and 177 and 167 g/t Ag, (Stammers, opit. cit.).

The South Zone includes a zone of smithsonite and zinc-bearing oxide float, with values of 68.32% Zn, 0.03% Pb, 9.9 g/t Ag. Other gossanous quartz-mica phyllite/schist, anomalous in lead and silver, and iron-manganese rich oxide float boulders outline four target areas in the South Zone (Stammers, 1985b, p. 16-18).

MARGINAL NOTES

INTRODUCTION

The Rancheria District is a region covering portions of northeastern B.C. and southeastern Yukon that contains numerous silver-rich vein and replacement-type deposits.

Mineral exploration in the area has been active since the early 1980's, with the discovery of the silver-lead-zinc deposit at Midway in contiguous B.C.

LITHOLOGY

The Sab Lake-Meister Lakes map areas are within Cassiar Platform and are dominantly underlain by Lower Cambrian (Atan Group) miogeoclinal quartz-rich clastic and carbonate rocks, and derived schists and gneisses. These rocks are intruded by Cretaceous potash-rich polyphase granitic batholiths and stocks, and minor mafic to felsic dykes of presumed Tertiary age.

The clastic rocks consist of interbedded wackes, arenites, quartz arenites (quartzite), and derived metamorphosed equivalents, such as mica schists, quartzofeldspathic gneisses, schists and quartzite.

The carbonates commonly contain garnet-pyroxene skarn at, or near the contact with steeply-dipping granitoid rocks. Subordinate amounts of wollastonite, pyroxene and minor amounts of vesuvianite (idocrase), scheelite, molybdenite, pyrite, zoisite (replacing garnet), and scapolite also occur. Skarns do not occur as xenoliths, and seem to have been only slightly affected by fracturing, quartz-veining, or late amphibole-epidote alteration.

The Cretaceous Cassiar Batholith, Marker Lake Batholith, and Meister Lake Stock are predominantly granite, but range in composition from quartz diorite, through trondjemite, granodiorite, to quartz monzonite. Other phases include simple quartz-orthoclase-mica pegmatites, aplites and related dykes, veins and apophyses.

Mafic and less commonly felsic dykes are considered to be spatially and temporally associated with late Cretaceous and early Tertiary faults and mineralizatio elsewhere in the district (Abbott, 1985). Hosever in the present map areas , only a few Tertiary mafic and felsic dykes have been obsreved to contain significant argentiferous sulphide mineralization. The veins hosting the Silver Hart (CMC), LOGAN, and MR deposits have not been dated.

STRUCTURAL GEOLOGY

The most prominent structural features are large, regionally continuous, northwest-trending, transcurrent faults (or lineaments), that are probably superimposed on the major regional faults (Cassiar, Tintina, and Kechika) reported by several authors, and considered to postdate arc-continent collision of early Mesozoic time (Tempelman-Kluit, 1979).

Related small-scale faults of variable orientations and age, and other structures such as folds, thrust faults and joints occur in the adjoining areas.

Joints are ubiquitous and occur in all rock types in the area, and include more than one age, as indicated by crosscutting field relationships. In general they parallel, are obliquely oriented to, or are at right angles to the above mentioned faults. Some of the joints and faults are infilled with vein materials, such as quartz and carbonate.

Primary bedding is obscured in interbedded metamorphosed rocks where banding (or metamorphic layering) is predominant.

Foliation and slaty cleavage are obliquely superimposed on primary bedding and banding (gneissosity) to the extent that these features are frequently difficult to differentiate.

ECONOMIC GEOLOGY

LEAD-ZINC-SILVER MINERALIZATION

Preliminary observations of numerous field relationships concur with Abbott (1985) that silver-bearing mineral deposits in the Rancheria district postdate the Cretaceous emplacement of the Cassiar Batholith, Marker Lake Batholith and Meister Lake Stock. However, a genetic relation between the intrusions and accompanying dynamic effects cannot be underestimated.

RECOMMENDATIONS FOR EXPLORATION

Silver-bearing mineral deposits in the Rancheria District are spatially and temporally related to faults, mafic and felsic dykes, breccias, and to a limited extent, skarns. Exploration should be restricted to major and minor faults and shears at, or near intrusive contacts. Geological controls related to fluid movement along these faults, such as alteration envelopes, and contact metasomatic alteration along intrusion borders may be used as a further guide for future exploration.

To date the most successful exploration tools, besides prospecting have been regional geochemical sampling and airborne EM and resistivity surveys followed by detailed geochemical, geological and geophysical work. Abundant surficial overburden necessitates trenching and test pits by back-hoe or bull-dozer.

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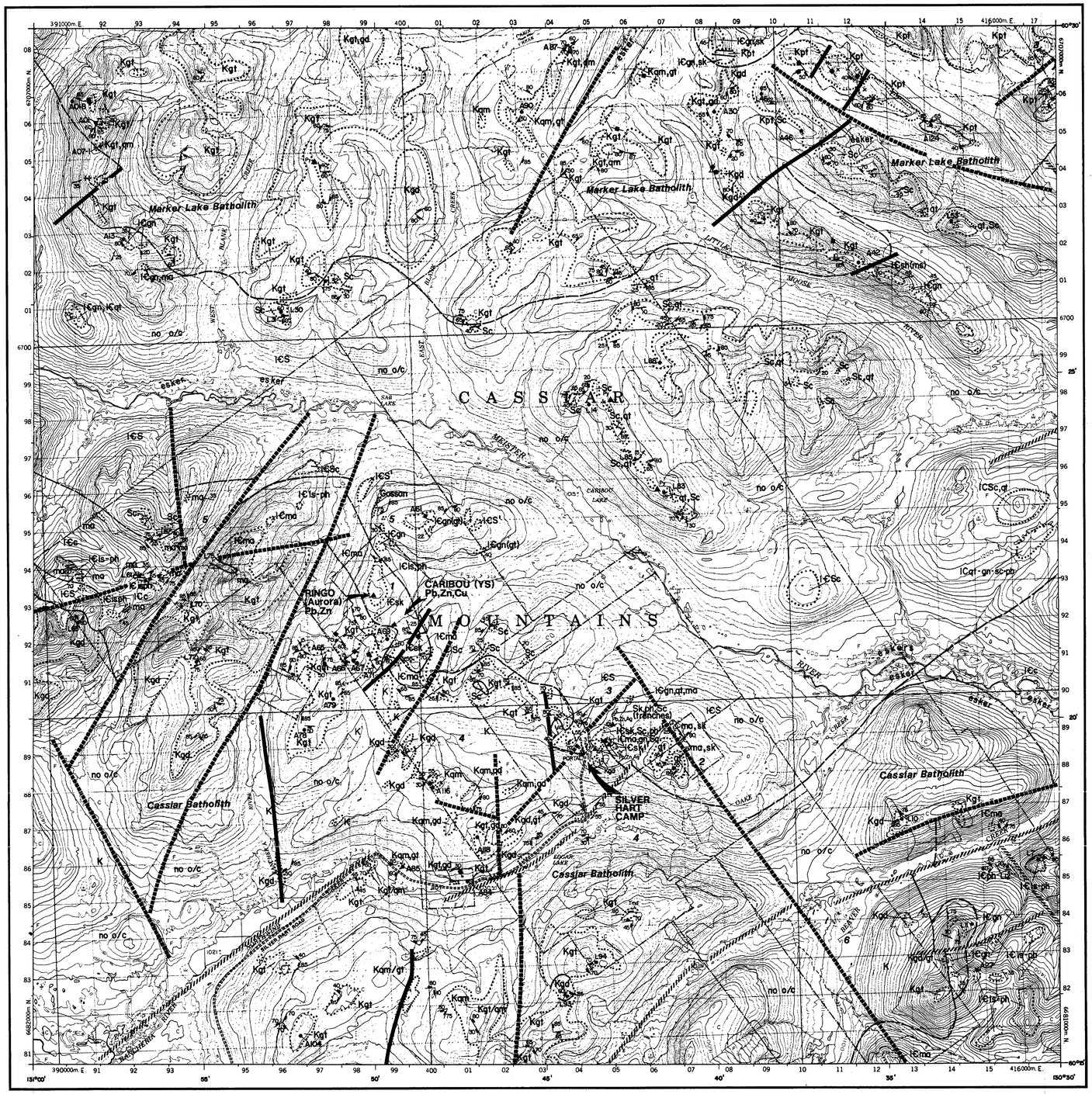
GEOLOGY OF THE SAB LAKE MAP AREA (105B/7), RANCHERIA DISTRICT, SOUTHEAST YUKON



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Funding by: Canada-Yukon Economic Development Agreement

DESCRIPTION OF PROPERTIES

A. SAB LAKE MAP AREA (105 B 7)

RINGO (AURORA) Claims (1)

Current records indicate that B.A. Copper Mines and B.A. Resources own the 26 RINGO (AURORA) claim property consisting of RINGO 1-8 (B.A. Copper Mines Ltd.) and RINGO 9-26 (B.A. Resources Ltd.). This area was originally staked in 1948 by Great Northern Exploration Co. Ltd. as BENDER, MOLY, and AURORA claims, to protect two scheelite-molybdenum showings in skarn, and as MOOSE claims to cover a silver-lead vein.
The present RINGO claims were staked in 1980, 1982 and 1983 by B.A. Resources, and were explored with VLF-EM and self-potential geophysical surveys in 1984 (DIAND, 1984, p.56).

The claims were visited in 1986. Field observations indicate a host limestone/marble of unknown thickness with a few interbeds of quartz-biotite-muscovite schist and gneiss. At the basal contact of the limestone unit, a garnet skarn contains zones of black manganese-iron oxide gossans with abundant disseminations of sphalerite, galena and chalcopyrite. Dimensions are neither reported nor exposed by trenching. Below the skarn, rocks of the Cassiar Batholith are intensely altered to a plagioclase, dark green pyroxene endoskarn. Away from, and in sharp contact with this endoskarn, the granitoid rocks are sericitized. Very coarse grained rosettes of molybdenite and scheelite with locally abundant disseminations of lead-zinc minerals were reported by Dick (1980) who estimated the limits of the sericitic alteration to extend up to 5 m into the intrusion.

NITE Claims (2)

Gyro Energy and Minerals Corporation is the recorded owner of NITE (6;8-10) claims located next to the CMC property, and occurs in the middle of a group of over 2,000 claims either staked by, or acquired by Silver Hart Mines Ltd. The geology, exploration history and potential of the NITE claims is described under Silver Hart Mines below.

Silver Hart Mines Ltd. (3,4,5, and 6)

Silver Hart Mines is the current owner of the CMC 1-41; 43-104 (Former MID and NITE claims (3), SH 1-196 claims (4), and recently acquired SAB 1-88; 90; 99-135; 139-179 (5) and BEA 5-48; 53-102 claims (6).
In 1971, the NITE and MID claim group, owned by Wolf Lake Joint Venture consisting of Caltor Syndicate, Rayrock Mines Ltd., and Ashland Oil Inc., were explored by airborne magnetic survey, geological mapping, prospecting, geochemical sampling, trenching and diamond drilling.

SAB and BEA claims represent new properties on previously unstaked ground. Portions cover the former DUAL claims (1962), EL CAPITAN, BOLL, BLACKY and MARINA groups (1968), staked by Great Northern Exploration Co. Ltd. (Cathro, 1972).

Extensive diamond drilling, mechanical, geological-geophysical-geochemical surveys have since been conducted on the CMC claims (Fowler, 1985). From January to April, 1986, Silver Hart Mines employed an average of 10 persons and drove an adit, several raises and lateral drifts (haulages) on the property. New mineralized zones locally referred to by the company as the KL and "Meteorite" zones were exposed by bulldozing and trenching in the 1986 field season. The KL zone appears to be along the northwest strike trend of the fault zone hosting the SM and TM zones; it has been exposed by a 200-250 m long 2 m wide trench that exposes massive, 2-3 cm wide argentiferous galena-sphalerite veins containing tetrahedrite and pyrargyrite. It occurs near a granitic boundary with limestone-marble-skarn and derived schists/gneisses of the siliciclastic units. The "Meteorite" showing occurs in limestone, marble hosts (minor schist/gneiss interbeds), near an endoskarn development in close proximity to a narrow (5-10 foot) quartz phyric felsic dyke (rhyolite?). The felsic dyke cuts limestone and marble units.

The company has reported that there is probably sufficient tonnage and tenor to operate a 163 tonne per day (180 ton per day) mill for three years. It has procured a sizeable claim group consisting of more than 1000 claims along the northwest trend of the silver-lead veins.

The CMC veins are near the contact between carbonates and siliciclastic rocks, and the Cassiar Batholith. The veins contain oxidized galena and sphalerite, with associated silver. Zinc also occurs within manganiferous zones which represent leached veins. In addition, the small high grade deposits of molybdenum tungsten are associated with the contact skarns in the NITE showing.

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To date the most successful exploration tools, besides prospecting have been regional geochemical sampling and airborne EM and resistivity surveys followed by detailed geochemical, geological and geophysical work. Abundant surficial overburden necessitates trenching and test pits by back-hoe or bull-dozer.

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