STIKINE PROJECT

Dickinson/McClaren

November 1975

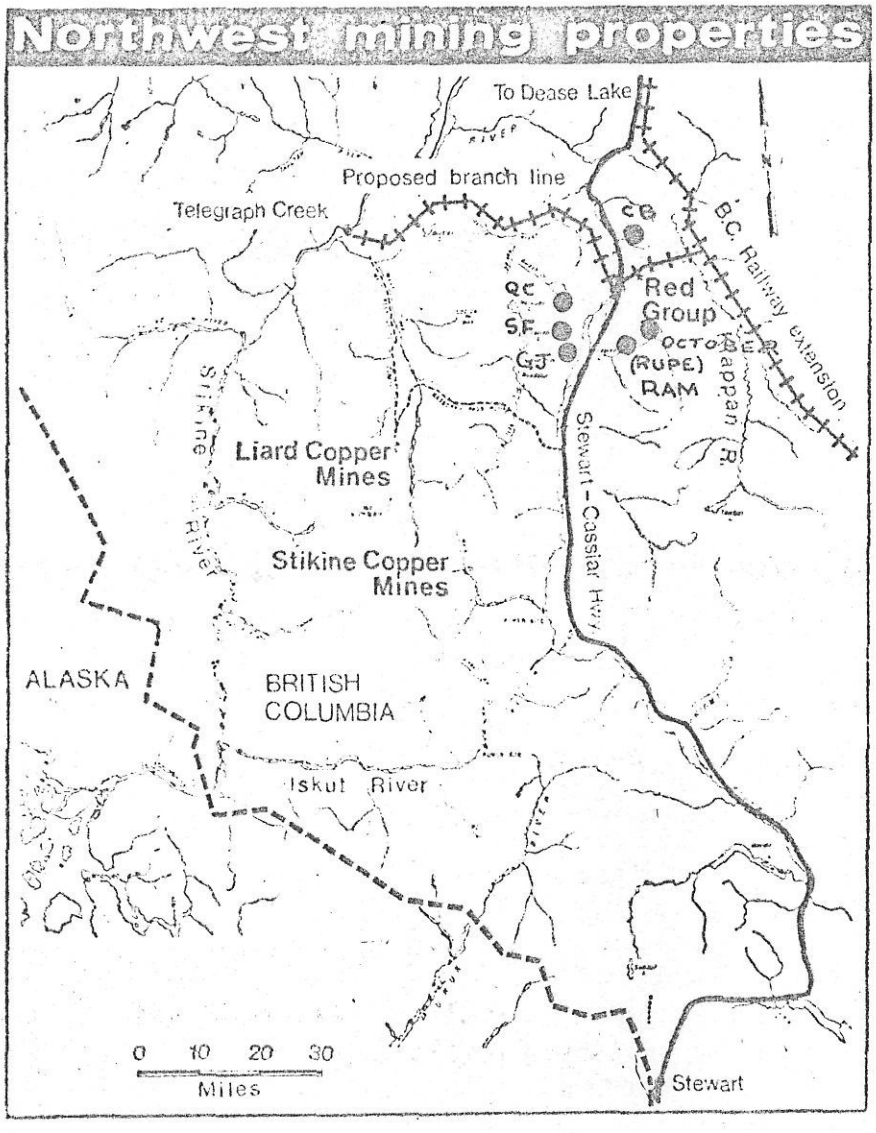
Contents

Introduction

The purpose of this report is to review the general geology and its relationship to the porphyry-type copper deposits and the stockwork silver deposits of Upper Cretaceous and/or Late Tertiary age located in Northwestern British Columbia. The deposits are found to be closely related to north-south and east-west fault zones and feldspar porphyry intrusives. The porphyry-type copper deposits are characterized by their unusually high amounts of precious metals and their telescoped alteration assemblages.

The stockwork silver deposits are also found to be spatially related to feldspar porphyry intrusives and may be realted to porphyry-type copper deposits.

The properties referred to in this review are all located within a radius of twenty-five miles of Eddontenajon Lake, a small community on the Stewart-Cassiar highway, approximately 140 miles north of Stewart, B.C. All properties are presently held by Mr. R. Dickinson.


Northwest mining properties
To Dease Lake
Proposed branch line
Telegraph Creek
CE
QC
SF
GJ
Red Group
OCTO
(RUPE)
RAM
B.C. Railway extension
Bappan R.
Stewart-Cassiar Hwy
Liard Copper Mines
Stikine River
Stikine Copper Mines
ALASKA
BRITISH COLUMBIA
Iskut River
0 10 20 30
Miles
Stewart

(A) Regional Geology

The area outlined on the index map lies across the axis of the northeasterly trending Stikine Arch, a lobe of crystalline and metamorphic rocks that remained relatively positive throughout most of Mesozoic time.

Upper Triassic eugeosynclinal sediments and andesitic volcanics that consist of green, purple and grey augite andesite and derived volcaniclastic rocks are exposed on the Klastline Plateau. The volcaniclastic rocks include intervals of greywacke, siltstone and minor conglomerate.

Several small bodies of fine-grained, light grey felsite or felsite porphyry intrude the volcanics and volcaniclastic assemblage on the Klastline Plateau and an area to the east of Kineskan Lake. Wherever age-relationships have been determined, these bodies were found to be younger than the main mass of the Coast Intrusions and have been assigned an age Upper Cretaceous and/or Late Tertiary.

(B) Intrusive Rocks of Upper Cretaceous and/or Late Tertiary age and their Associated Mineral Deposits.

Sub-volcanic plugs and associated dykes in the map area are found to occur along a north-south orientation. On the Klastline Plateau and the area to the west of Kineskan Lake these intrusive plugs are distrubuted along major easterly striking fault and shear zones. The unweathered rock is white to light grey with a fine-grained slightly porphyritic texture. Mafic constituents may include up to 15% of the rock with biotite and hornblende the primary mafic minerals. Generally, the mafics make up only 2% of the rock or may be completely absent. The mafics may be altered to secondary chlorite and pyrite. Phenocrysts of sodic plagioclase and rounded blobs of quartz are found surrounded by a fine-grained groundmass of intergrown qartz, albite and potash feldspar. When altered, the plagioclase and K-feldspar are broken down to sausserite and sericite respectively.

These feldspar porphyries are generally termed 'felsites' because of their leucocratic, bleached appearance in the field. It appears that these intrusions were probably emplaced as high level plugs of andesitic composition. The textures observed in these rocks support this hypothesis (subparallel alignment of feldspar phenocrysts; set in an "aplitic" groundmass).

Compositionally these rocks range from grandiorite porphyries, quartz monzonite porphyries to latite and quartz latites.

Mineralization

Mineralization genetically related to these intrusive plugs is generally oyrite, chalcopyrite and bornite. This assemblage is characterized by a relatively high precious metal content. Silver to gold ratios vary from 2:1 up to 40:1 with the better gold values generally found with the higher grade copper zones.

Carbonate alteration is widespread and accompanies some chalcopyrite mineralization. Later quartz-sericite alteration results in a two-fold increase in copper content in the rocks involved. Hence,. weak phyllic alteration is superimposed upon rocks propylitically altered, indicating a separation in time of the alteration events. This telescoping of several alteration types may be due to the shallow levels of emplacement of the intrusive systems.

Also associated with these felsite intrusions are barite stockworks with associated precious metal and base metal values. The minerology of these deposits is essentially pyrite, chalcopyrite, tetrahedrite, galena and native silver. These deposits may be spatially related to the porphyry-type copper deposits outlined above.

(C) Economic Geology

Introduction

The Upper Cretaceous to Tertiary plugs exposed along the eastern margin of the Coast Crystalline Belt have porphyry-type deposits associated with them. The Skeena Arch to the south of the area discussed has a high density of copper and copper-molybdenum porphyry deposits related to intrusives that developed in similar and possibly related tectonic environment. As previously noted, the intrusives in the Stikine Arch have a high precious metal background. This is supported by preliminary geochemical analysis by J.G. Souther (G.S.C. Paper 71-74) which shows that the intrusives have a relatively high silver background. This, plus the proximity of the Snippaker Creek property and the SF property to these felsite intrusives, suggests that the region may have silver potential.

Porphyry-type Copper Deposits

(A) GJ Claim (12 units)

References

A.R. "700

MMAR 1971 pp 40-41

MMAR 1965 p 43

MMAR 1970 pp 59-60

This property on the Klastline Plateau covers a discovery of copper mineralization made in the upper stretch of Groat Creek in 1964.

The main showing is a mineralized quartz stockwork in rhyolite which extends along Groat Creek for a distance of 160 feet. The property is underlain by Mesozoic volcanic and sedimentary rocks which are intruded by sheet-like bodies of finely grained granodiorite and quartz monzonite.

In Groat Creek the section includes from north to south ribbon cherts, quartzites, siltstones and mudstones overlain by a partly fragmented rhyolite-dacite unit that is then overlain by banded cherts and quartzites. Massive light grey-green crystal lithic tuffs of andesite composition overlie the chert and quartzite unit in the creek and also underlie the west side of the creek valley.

North-south and east-west faulting complicate the geological picture and these two fault directions are instrumental in localizing the intrusion of the sheet-like body of granodiorite in the northern part of the sedimentary-volcanic sequence. The intrusive is irregular in form, but

but may be as much as 600 feet wide. The main phase is a fine-grained grey rock in which sericitized plagioclase (andesine) is contained in a natrix of quartz, carbonate,. potash feldspar, and biotite. Original hornblende is mainly altered to a mixture of carbonate and minor biotite. The granodiorite is cut by widely spaced 1/8" to 1/4"quartz-carbonate and quartz-potash feldspar veinlets. Part of the intrusive mass is a fine-grained pink equigranular quartz monzonite in which the poikilitic potash feldspar may be secondary.

Intrusion of the granodiorite has resulted in fracturing and quartz veining of the brittle rhyolite unit bordering the southern contact of the intrusive. Several stages of quartz veining are evident,. terminated by barren coarse-grained quartz veins up to one foot wide, Narrow zones within the rhyolite unit have the appearance of a breccia, with angular one-half to one inch rock fragments contained in a qartz matrix.

In 1970 the drilling program consisted of a vertical hole and four angle holes drilled,north, east, south and west, all from the same set-up. Total drilling to 1975 is 8,000 feet with nine shallow holes located to the north of Groat Creek.

An induced polarization survey was conducted over a portion of the claims, and is recorded in Victoria as Assessment Rept. "700.

(B) QC Claim (8 units)

References

MMAR 1965 p41

MMAR 1969 p45

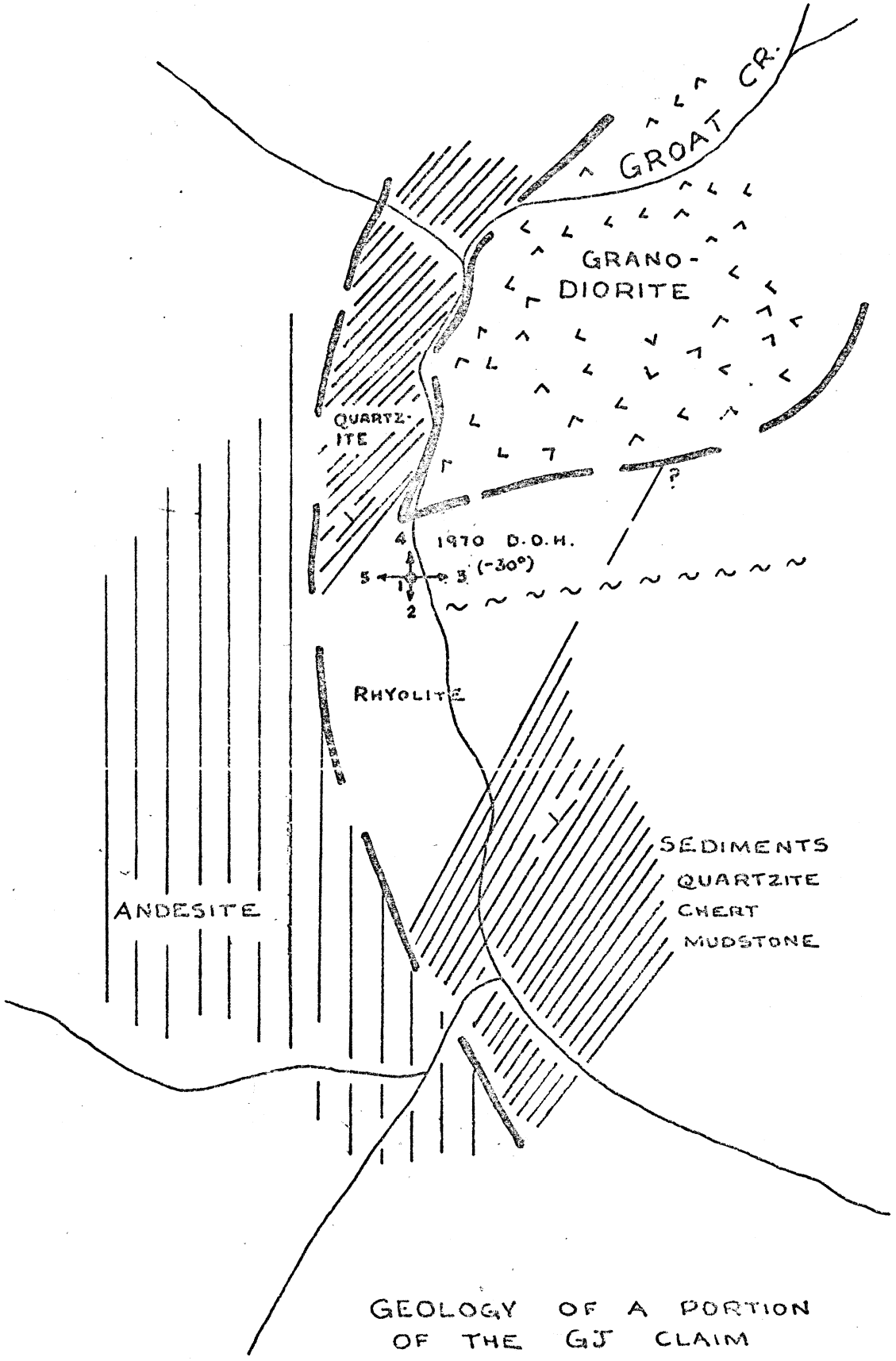
MMAR 1970 pp 57-58

Ass. Repts. "701, "2237.

The QC claims were originally staked in 1964 to cover a prominant gossan on the south valley wall of Quash Creek.

The central part of the claim group is underlain by a north-striking west-dipping homoclinal sequence of ironstained volcanic and sedimentary rocks which have been intruded by dykes and irregular masses of hornblende feldspar porphyry. The dykes and irregular mass of hornblende feldspar porphyry trend east-west and north-south. A typical specimen is quartz diorite with 25% of the rock consisting of euhedral 2 millimeter phenocrysts of sericitized plagioclase (oligioclase-andesine) and chloritized hornblende set in a matrix of cryptocrystalline quartz, chloritized biotite and carbonate. Locally the porphyry has a pinkish cast and is a quartz monzonite with abundant perthitic potash feldspar in the fine-grained quartzose matrix.

The most intense copper and iron-staining is found in brecciated volcanic and sedimentary rocks adjacent to porphyry dykes. Copper mineralization occurs in the altered volcanics, sediments and the porphyry bodies along an east-west zone approximately 3,400 feet long and 1,200 feet wide. The most



GEOLOGY OF A PORTION
OF THE GJ CLAIM

SCALE 1" = 500'

intense mineralization is usually found in the porphyry bodies themselves, where the mafics of the porphyry bodies have been altered to chlorite and epidote and appear to be replaced by pyrite and chalcopyrite.

Thirty samples taken by G.W. Grant in 1969 (A.R."2231) had values for total copper range from 1.13% to .04%. The values assumed for sulphide copper range from .04% to .36%.

Work performed on the QC claims includes an induced polarization survey and nine diamond drill holes totalling 6,395 feet.

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Bob Dickinson

GEOCHEMICAL ANALYSIS

REPORT No: 75 - 207 DATE October 23, 1975.

SAMPLES FROM _____

SAMPLE	ppm Ag	ppm Cu	ppm Mo	ppm Pb	ppm Zn
B - 1	1.2	146	15	20	282
B - 2	1.1	230	19	17	213
B - 3	1.1	151	5	19	259
B - 4	0.7	156	2	18	130
B - 5	0.9	162	2	20	109
B - 6	0.9	128	3	18	102
B - 7	0.8	80	1	10	68
B - 8	0.8	77	1	8	58
B - 9	0.8	104	4	16	107
B - 10	0.7	78	2	17	63
B - 11	0.7	112	1	11	79
B - 12 G	0.7	173	3	17	89
B - 13	0.9	36	1	12	94
B - 14	0.7	38	2	10	78
B - 15	0.6	38	2	10	75
B - 16	0.6	41	3	9	100
B - 17	0.6	38	7	7	73
B - 18	0.5	87	4	6	71
B - 19	0.7	90	7	7	108
C - 1	1.2	110	5	22	160
C - 2	1.4	141	3	20	135
C - 3 soil	1.1	87	2	17	117
C - 4	1.0	139	2	23	106
C - 5	0.8	69	3	17	88
C - 6	1.1	100	2	20	133
C - 7 soil	1.0	41	2	17	91

ASSAYER A. Pan Samuels

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

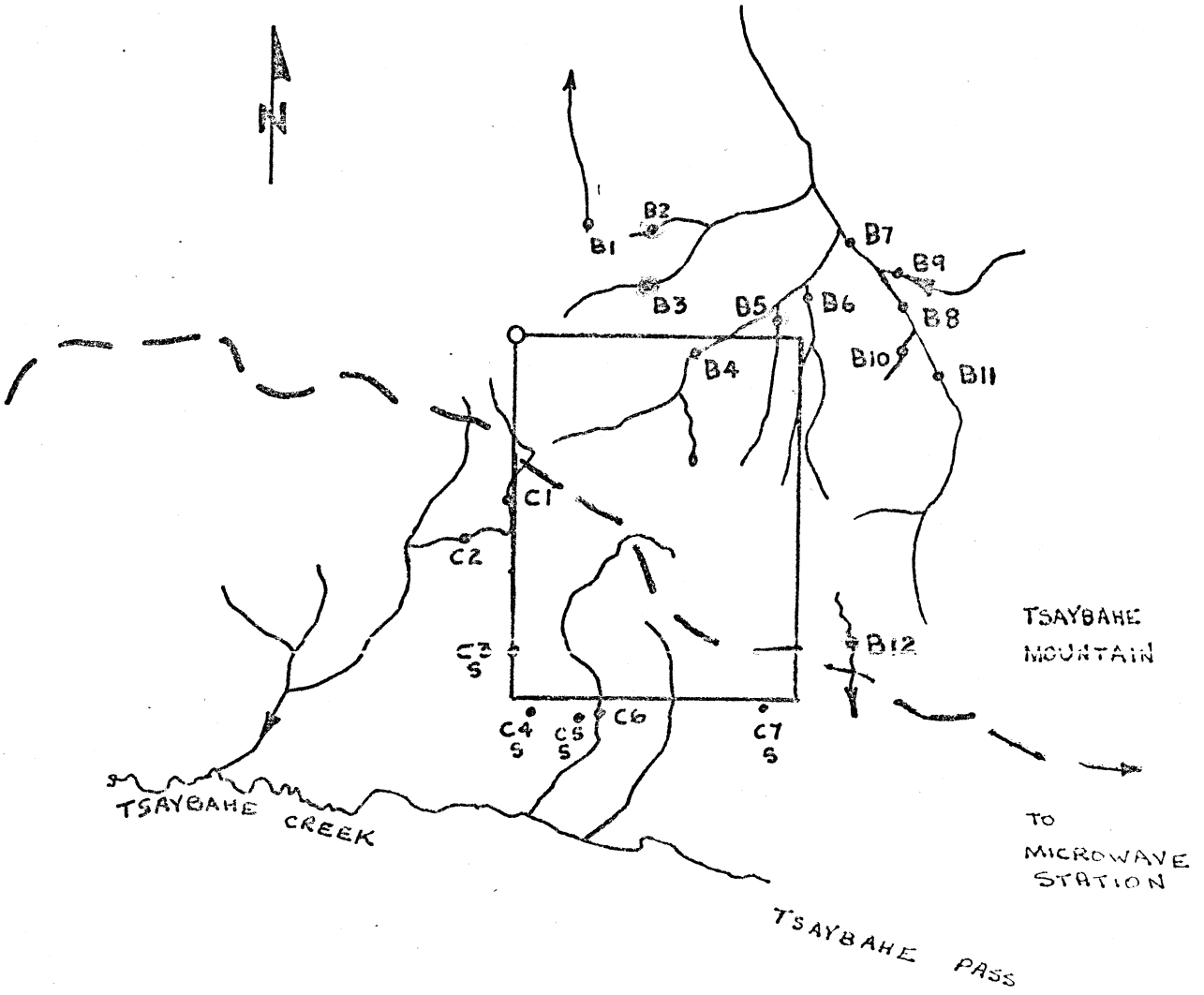
(C) CB Claim (20 units)

The CB claim was located in October 1975 after the discovery of copper mineralization in quartz-carbonate veinlets, as fracture fillings and disseminations in an altered feldspar porphyry. The porphyry occurs as dykes cutting altered sediments of upper Triassic age.

The feldspar porphyry consists of euhedral phenocysts of plagioclase feldspar set in an aphanitic groundmass. There are no mafic minerals present. The feldspars have been altered to carbonate and clay minerals are present. Brecciated intrusive rocks are cemented by quartz and carbonates with the fragments partially replaced by pyrite.

A preliminary silt and soil geochemical survey reveals that the northern portion of the claim block has anomalous copper, molybdenum and zinc values.

The area is extensively covered by overburden (see photos "CB"; appendix) and requires a thorough geochemical and geological evaluation.



CB CLAIM

SILT AND SOIL GEOCHEMISTRY

LOCATION MAP

SCALE: 1:50,000

(D) RAM Claim (12 units)

The RAM mineral claim lies approzimately 4 miles west of Todagin Lake at approximately the 6,000 foot elevation. The claim covers a felsite plug that cuts colcaniclastic rocks or the probable Lower Jurassic age. The claim lies on a major east to north-east trending fault that extends to the Red Group approximately four miles to the north-east. It is probable that this major fault has influenced the localization of mineralization on the Red Group.

This claim group was previously held by Eostall Mining Limited (Texasgulf Inc.)

Silver Deposits

SF Claim (9 units)

References

GSC Paper pp 71-74

MMAR 1965 p 41

The SF claim is on Klastline Plateau 4 miles east of Nuttlude Lake. The showings are in interbedded red and green conglomerate and sandstone of probable late Triassic age. The sediments are cut by 4 rhyolitic sills that dip north into the hill and are probably satellitic to the felsite body exposed north of the property. Stockworks of barite occur chiefly in the red conglomerate and are associated with sulphides including galena, sphalerite, chalcopyrite and tetrahedrite. Native silver is also reported.

The main zone of interest extends for 1,000 feet on the contour of the mountain. A total of 2,858 feet of trenching and 1,069 feet of diamond drilling was performed by Conwest on the main zone.

Summary

This review has shown the relationship between the feldspar porphyry intrusives and porphyry-type copper deposits. The alteration associated with the porphyry-type deposits is telescoped and may be related to emplacement level of the porphyry intrusives or the level of erosion. The result of the telescoping of alteration assemblage is to have a phyllic assemblage overprinting a propylitic assemblage.

The majority of the deposits presented have had some form of follow-up exploration carried out. In the light of the results of recent exploration and the changing economics of the area, past discoveries require additional and, in some cases, a more thorough evaluation. Additional information can be obtained for the SF, GJ and QC properties to aid in further preliminary evaluation.

Appendix

(i) View of the northern portion of the GJ claim. Observer is looking to the southeast at the headwaters of Groat Creek.

(ii) View of the CB claim. The observer is looking to the east. The height of land in the foreground is the centre of the CB claim.

3

4

5

6

M 104G/9E

57°45'

TO WEST SEE MAP 104G/9W

GOAT HIDE 56(I)

GOAT 57(I)

GOAT HORN 59(I)

GU 65(I)

LITTLE GOAT 60(I)

NOODLE 42(S)

GOAT 50(S)

TOUGH WOLF 1/4

TOUGH WOLF 2/3

TOUGH WOLF 2/4

TOUGH WOLF 1/3

TOUGH WOLF 1/2

TOUGH WOLF 1/1

Lake