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FREEPORT RESOURCES INC./STRYKER RESOURCES LTD.

MICROSCOPE STUDY - ORE SAMPLES
LOW JARVIS SHOWING, MOUNT HENRY CLAY,
BRITISH COLUMBIA

Vancouver, B.C.
January 31st, 1985

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I Summary and Conclusions

The following report serves to compliment the findings in two previous reports on microscope studies of ore samples from Mount Henry Clay completed for Freeport Resources Inc./Stryker Resources Ltd. and dated 20 August 1984 and 26 October, 1984.

The main constituent ore minerals are similar as described in all three reports, namely sphalerite, chalcopyrite, galena and tetrahedrite. The ore presents a fine banded structure with the sphalerite and chalcopyrite tending to occur primarily in parallel bands or veinlets closely associated with the galena. Three generations of pyrite are present with gangue minerals consisting of quartz, barytes and calcite.

II Introduction

The writer carried out a preliminary microscope study at the request of Mr. W.G. Clark, President of Freeport Resources Inc./Stryker Development Ltd. The samples were taken by Mr. D.A. Perkins during the 1984 field season and represent massive ore sulphide mineralization in large glacial erratic boulders on the British Columbia side of the International boundary.

The writer wishes to acknowledge the courtesy of Placer Development Limited in allowing the use of the Company's Zeiss Photo-microscope.

III DESCRIPTION OF ORE SAMPLES

J. No. 4

Macros:

Bands and clots of white barytes with aggregates of granular pyrite and associated sphalerite dark brownish black. The average grain size of the pyrite grains is 0.3 m.m. White quartz is associated with the barytes.

The rock is non-magnetic.

Micros:

Sphalerite abundant as irregular lenticular masses and veinlets. The sphalerite is embayed by quartz and also contains fine veinlets of quartz. Very rare inclusions of pyrite up to 100 u and occasional blebs of chalcopyrite (very rare) < 10 u.

Pyrite three generations observed and the crystals are mostly well-formed. The first generation is sub-hedral to euhedral and ranges from 250 u to 500 u.

Second generation pyrite is sub-hedral from 50 u to 100 u, and is disseminated in the ground mass.

Third generation pyrite occurs as anhedral grains < 10 u, finely disseminated in the matrix.

Tetrahedrite light-grey colour - fairly large irregular masses with margins strongly enlayed by the ground-mass.

Inclusions consist of anhedral blebs of chalcopyrite up to 100 u and sub-hedral pyrite averaging 40 u. Fine veinlets of quartz < 10 u thick tend to follow the main cleavage planes of the tetrahedrite.

Chalcopyrite fairly rare as blebs and discontinuous veinlets < 10 u in sphalerite and as anhedral blebs in tetrahedrite. Finely disseminated anhedra of chalcopyrite about 5 u to 10 u occurs in the ground mass of quartz and barytes.

J. No. 7

Macros.

Anastamosing veins of chalcopyrite in medium grained gangue composed of white barytes with white quartz and minor pyrite.

The rock is weakly magnetic.

Micros:

Chalcopyrite abundant as anastamosing veins, lenticular masses and interstitial anhedra. Inclusions: sphalerite, with minor associated galena and rare pyrite. The sphalerite and galena inclusions are anhedral whilts the pyrite is euhedral and of the second order. The chalcopyrite is traversed by fine veinlets of quartz.

Galena as blebs, veins and interstitial forms closely associated with sphalerite and chalcopyrite. The galena appears to be later than the sphalerite and chalcopyrite. The galena veins are up to 500 u thick with a minimum of 10 u.

Sphalerite as irregular veins associated with chalcopyrite and as irregular anhedra and interstitial forms, widely disseminated. Inclusions: minor galena and very rare fine grained blebs of chalcopyrite. Some of the sphalerite anhedra are rimmed by galena.

Pyrite

Three generations are present. The first order generation of pyrite is fairly rare and ranges from 400 u to 2,400 u. It is sub-hedral to euhedral in form and traversed by numerous cracks up to 20 u filled by matrix quartz.

The second order pyrite is mostly sub-hedral and averages 250 u. It is rare.

The third order is extremely rare and occurs as anhedral rounded grains averaging 10 u forming inclusions in the sphalerite and disseminated in the matrix.

J. No. 9

Macros: Sphalerite dark brown, finely disseminated with average grain-size 0.3 m.m. The matrix consists mainly of white barytes studded through with finely disseminated well-formed (euhedral) pyrite (< 0.3 m.m.) and minor white quartz.

The rock is non-magnetic.

Micros:

Sphalerite is fine thread-like veinlets parallel to one another and lenticular and anhedral masses. The latter are closely associated with chalcopyrite. The fine veinlets average about 120 u in thickness whilst the lenticular and anhedral masses range from 250 u to 1,000 u and contain very rare rounded inclusions of pyrite up to 600 u across.

Chalcopyrite as veinlets up to 100 u and as anhedral blebs up to 2,000 u always closely associated with sphalerite. The chalcopyrite often tends to rim crystals of first order pyrite.

Galena extremely rare as anhedra 120 u across at contacts between sphalerite and chalcopyrite.

Pyrite

The first order pyrite is 600 u to 2,000 u sub-hedral rounded, and occurs as inclusions in sphalerite.

The second order is generally 200 u to 400 u and is sub-hedral rounded.

The third order pyrite occurs as fine disseminated grains averaging 20 u mostly in the matrix quartz but also to a very minor extent in the larger sphalerite masses and then the pyrite is marginally disposed.

J. No. 12

Macros:

Massive sulphide mineralization with abundant chalcopyrite as anastamosing veins and prominent crystals of brown-black sphalerite from 0.5 m.m. to 1 m.m.

Gangue minerals consist of white barytes, quartz and finely disseminate pyrite.

The rock is very weakly magnetic.

Micros:

Chalcopyrite as anastamosing veinlets, often thread-like and occasionally swelling and bunching together to form irregular lenticles. The chalcopyrite is closely associated with sphalerite. The thread-like veinlets of chalcopyrite are parallel to one another and average about 50 u in thickness.

The lenticles of chalcopyrite range from 500 u to 1,000 u across and contain inclusions of pyrite generally 200 u to 500 u, and irregular veinlets and anhedra of galena 50 u to 100 u.

Sphalerite occurs as three main forms. Firstly as fine thread-like veinlets 50 u in thickness associated with the chalcopyrite veinlets. Secondly as lenticular swellings up to 1,000 u along the thread-like veinlets, and thirdly as anhedral grains 20 u to 100 u disseminated in the matrix.

The sphalerite is occasionally rimmed and veined by chalcopyrite.

Pyrite

The first order pyrite is sub-hedral to rounded and ranges from 500 u to 800 u. It is fairly rare and occurs largely, as inclusions in chalcopyrite. There is a strong tendency for isolated crystals of first order pyrite to be traversed by broad cracks and rimmed and veined by chalcopyrite.

The second order pyrite is sub-hedral and ranges from 100 to 200 u. It is found mainly as inclusions in chalcopyrite but also occurs in the matrix.

The third order pyrite is extremely rare and occurs as finely disseminated rounded grains up to 20 u in the quartz matrix.

Respectfully submitted,

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January 31, 1985
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LOW JARVIS SHOWING

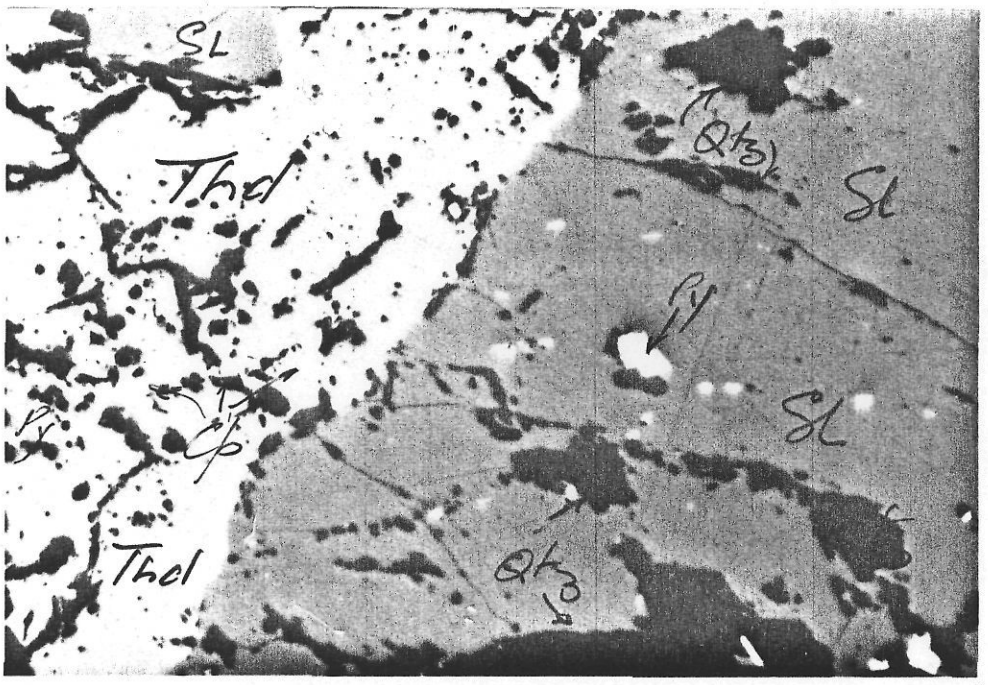
ABBREVIATIONS FOR PHOTOMICROGRAPHS

Ga	Galena
SL	Sphalerite
Cp	Chalcopyrite
Py	Pyrite
Qtz	Quartz

APPENDIX:

PHOTOMICROGRAPHS OF ORE SECTIONS

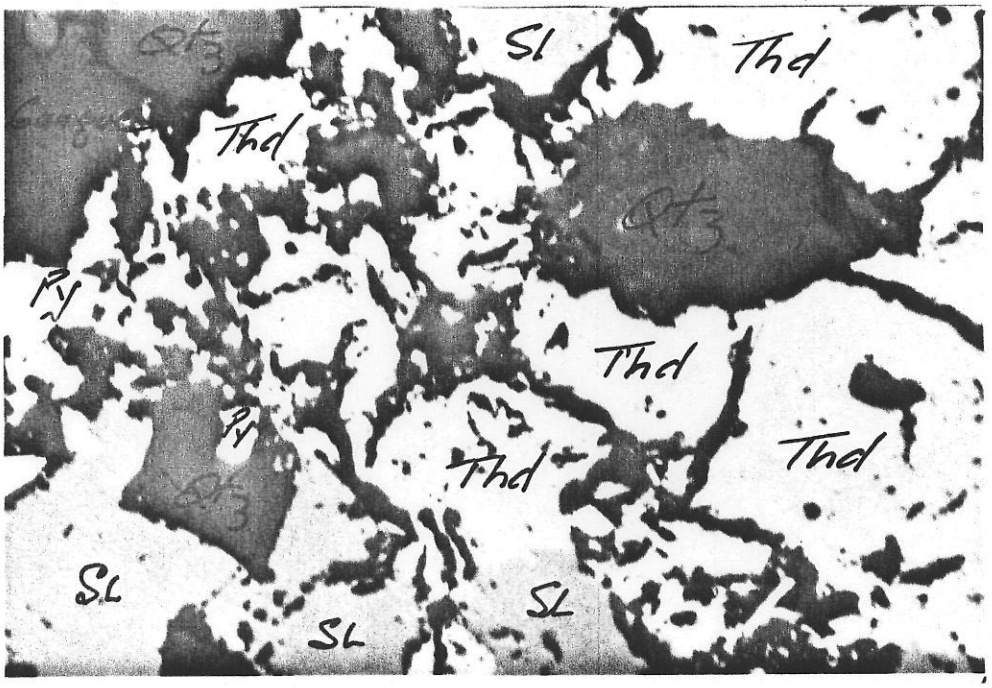
SAMPLE No. J-4



1,000 μ

Tetrahedrite with inclusions of chalcopyrite and pyrite and veinlets of quartz. Sphalerite contains minor blebs of chalcopyrite, rare inclusions of pyrite and veinlets and blebs of quartz.

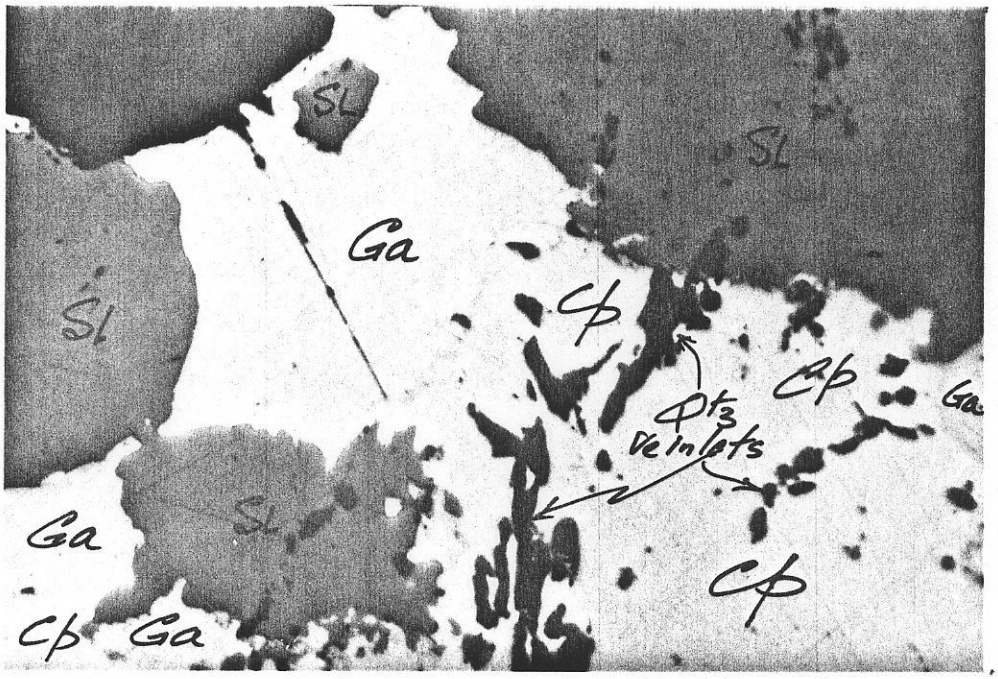
SAMPLE No. J-4



1,000 μ

Tetrahedrite closely associated with sphalerite and strongly embayed by the ground-mass.

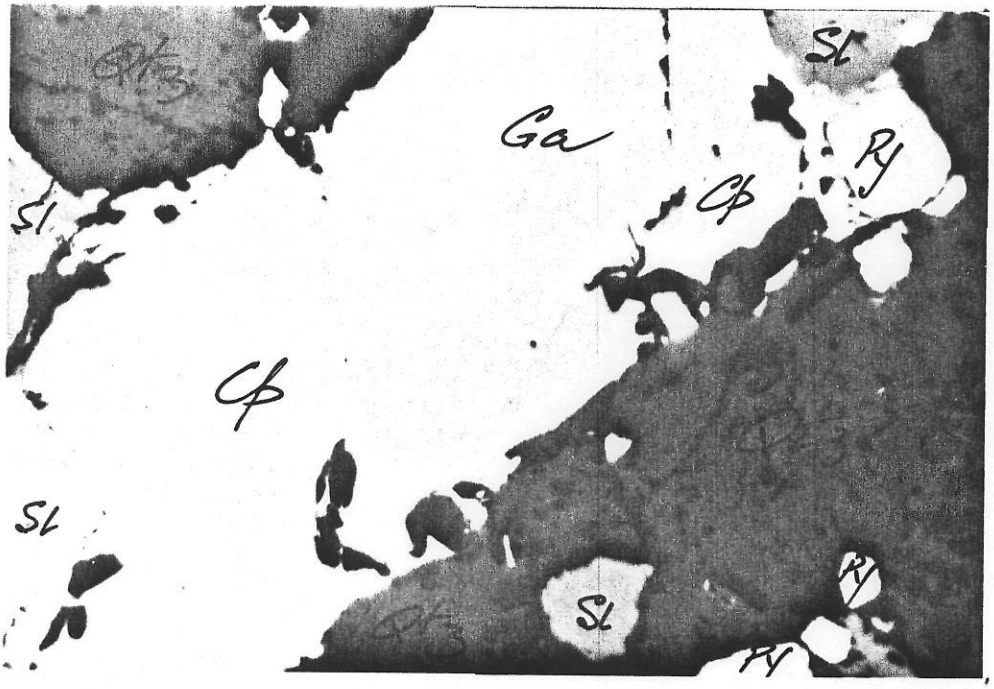
SAMPLE No. J-7



1,000 μ

Galena closely associated with sphalerite and chalcopyrite. Fine veinlets of quartz cut across the sphalerite and chalcopyrite.

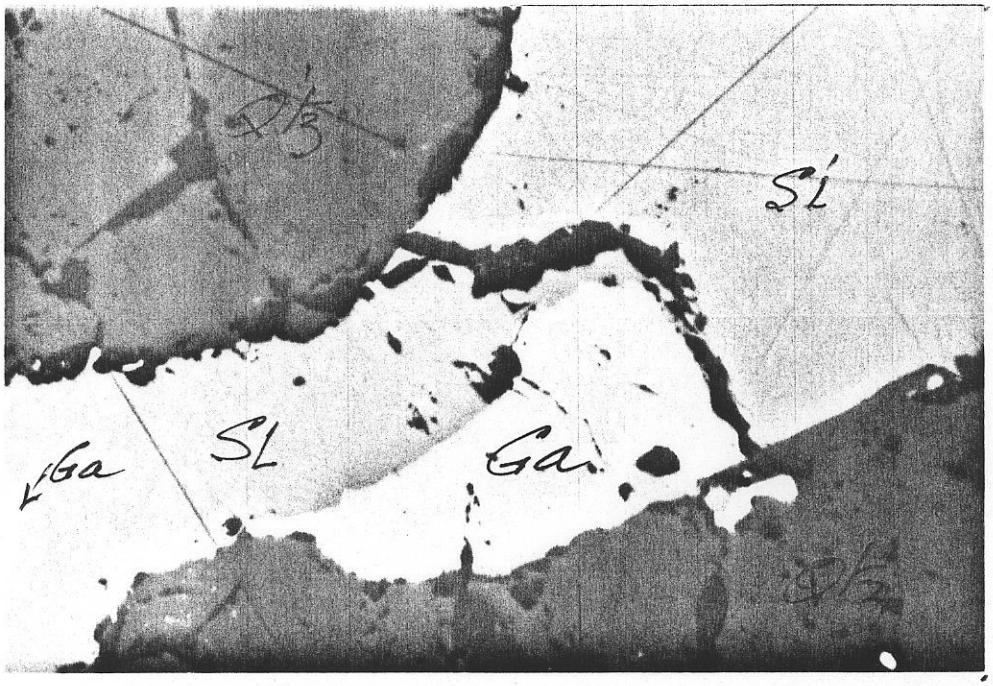
SAMPLE No. J-7



1,000 μ

Galena, sphalerite and chalcopyrite forming a composite vein. Note second order pyrite partially rimmed by chalcopyrite and rare third-order pyrite disseminated in the matrix quartz.

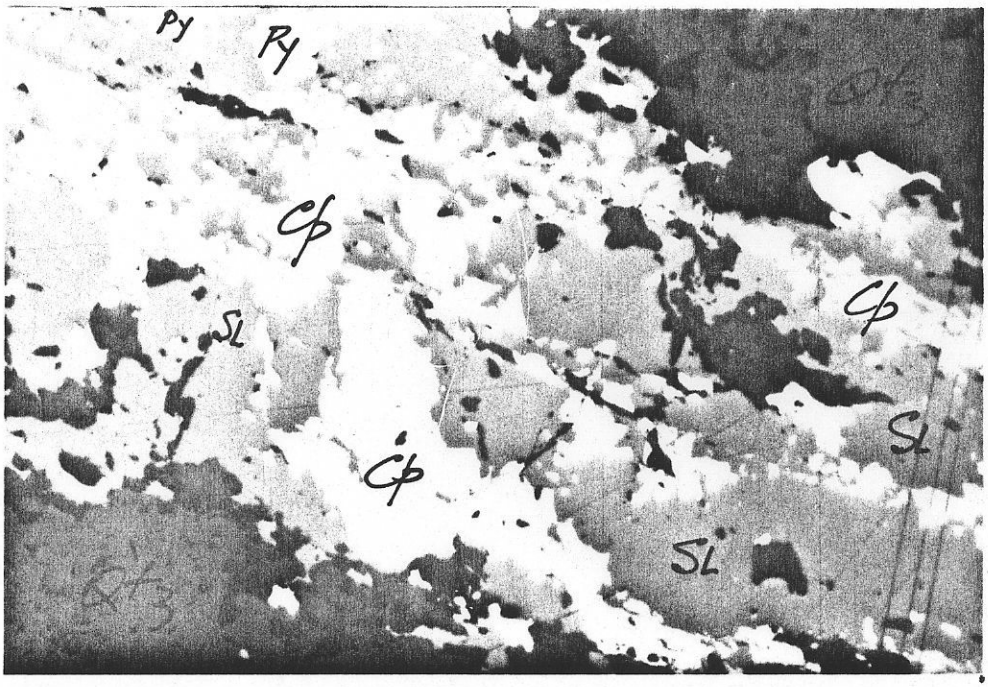
SAMPLE No. J-9



1,000 μ

Galena associated with sphalerite vein and cutting across matrix quartz.

SAMPLE No. J-12



1,000 μ

Anastamosing veinlets of chalcopyrite associated with a vein of sphalerite. Second order pyrite occurs as inclusions in the sphalerite.