ASSESSMENT REPORT

DOROTHY MINERAL GROUP

VANCOUVER MINING DIVISION

Latitude: 51° 23' N
Longitude: 125° 36' W

NTS 92N/05E

BY

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SUMMARY

The DOROTHY, GLACIER and SNOW mineral claims were located in 1992 to cover an area with anomalous stream sediment samples from the July 7, 1992 RGS release. The anomalous samples are located in southern tributaries to Dorothy Creek and in Hoodoo Creek on NTS 92N/05. The claims are grouped to form the DOROTHY claim group.

The claim group covers about 900 hectares on the southern slope of Dorothy Creek.

Thirty four stream sediment samples were collected from the creeks on the claim group. The samples were analyzed for gold by fire assay with atomic absorption finish and determinations for 32 elements by ICP. The samples returned up to 345 ppb Au, 6 ppm Ag, 1,328 ppm Zn, 248 ppm Cu and 156 ppm Pb.

Ninety three soil/talus fine samples were collected from grid and contour lines on the claim group. The samples were analyzed for gold by fire assay with atomic absorption finish and determinations for 32 elements by ICP. The samples returned up to 1,920 ppb Au, 25 ppm Ag, 7,054 ppm As, 5,596 ppm Zn, 1,020 ppm Cu, 4,090 ppm Pb and 70 ppm Cd.

Prospecting located boulders of semi-massive to massive sphalerite-pyrite±chalcopyrite in Glacier Cirque and quartz-pyrite±sphalerite veins in Glacier Creek. The semi-massive to massive sphalerite-pyrite±chalcopyrite boulders in Glacier Cirque can be traced along the moraine to the toe of the cirque glacier. One hundred and twenty seven rock samples were collected from the claim group. They were analyzed for gold by fire assay with atomic absorption finish and determinations for 32 elements by ICP. Samples which returned values above the upper ICP detection limits (Cd, Cu, Pb & Zn) were analyzed for individual elements. The samples returned up to 2,143 ppb Au, 1,029 ppm Ag, 2,450 ppm As, 17.0% Zn, 1.28% Cu, .45% Pb and .088% Cd.

Magnetometer survey was completed on 12.275 km of grid lines in Glacier Cirque, Glacier Creek, Glacier Saddle and along the South Ridge. The survey located intrusions in the Coast Plutonic Complex gneiss and younger (Miocene) intrusion complexes.

Whole rock analytical results cover a wide value range for both oxides and additional elements indicating an allochemical alteration in connection with the metamorphism.

Tl, Ga & Ge rock analysis, thin sections description, fluid inclusion study and electron probe microanalysis identified the semi-massive and massive sphalerite-pyrite±chalcopyrite±garnet±epidote as high temperature and medium pressure regional and contact metamorphic retrograde zinc skarn.

Additional geological and geophysical work is recommended to locate the source of the retrograde zinc skarn boulders in Glacier Cirque.

INTRODUCTION

The DOROTHY claim group is located in the Coast Range Mountains of B.C. (Figure 1) within the Vancouver Mining Division. It is composed of three modified grid claims, contains 36 units and covers about 900 hectares (Figure 2).

The claims were located July 8, 1992 to cover an area with anomalous Au, Cu and Zn values from RGS stream samples.

Previous exploration, in this extensively glaciated area, was immediately to the south, in Hoodoo Creek, where Kennco, Amax and Utah Mines Ltd. explored for Porphyry Cu-Mo, Mo or Cu between 1965 and 1980. Although they succeeded in locating porphyry mineralization, the area has been idle for over a decade and most of the claims have since lapsed.

The Geological Branch of the Ministry of Energy, Mines and Petroleum Resources completed a stream sediment survey in the Mount Waddington area (NTS 92N), and the results were released on July 7, 1992. The survey located anomalous values of Au, Cu and Zn in southern tributaries to Dorothy Creek and in Hoodoo Creek, NTS 92N/05.

This report summarises geochemical rock, stream sediment and soil/talus fine surveys, prospecting; geology and magnetometer survey on the claim group, and whole rock analysis, Tl, Ga & Ge rock analysis, thin section descriptions, fluid inclusion study and electron probe microanalysis study in 1992.

LOCATION, ACCESS, PHYSIOGRAPHY

The DOROTHY property is located south of Dorothy Creek, an eastern tributary of the Klinaklini River, which drains the Mt. Waddington Range of the Coast Range Mountains. The property is located approximately 330 km north of Vancouver and 34 km north of the head of Knight Inlet, at latitude 51°23' N and longitude 125°36' W.

Access to the property is by helicopter from Campbell River (Canadian Helicopter etc.) or from Bluff Lake, Chilcotin (White Saddle Helicopter).

The property lies in rugged terrain near the heart of the Coast Range Mountains. Relief is 792 m (2,600 feet) with elevation ranging from 1,372 m (4,500 feet) in Glacier Creek to 2150 m (7000 feet) in Glacier Saddle at the southeastern corner of the property (Figure 2). The creeks are separated by ridges with steep, inaccessible slopes and cliffs.

Tree line is at about 1700 m elevation with mature stands of fir and spruce at lower elevations. On north-facing slopes, permanent snow and ice fields extend down as far as 1,400 m elevation.

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Total precipitation has been estimated at 150 cm per year rain equivalent. Snowfall has been estimated at 500 cm per year above the 1,000 m elevation, making snow avalanches a major hazard at higher elevations.

CLAIM DATA

The DOROTHY mineral claim group consists of three modified grid claims (Table 1). The group which has 36 units and covers about 900 hectares, is located in the Vancouver Mining Division, NTS 92 N/05E (Figure 2).

TABLE 1
CLAIM DATA

Claim	Units	Record No.	Staked/ Recorded	Current Expiry	Assessment Pending
SNOW	4	311047	7/08/92	7/08/93	7/08/95
DOROTHY	20	311048	7/08/92	7/08/93	7/08/95
GLACIER	12	311049	7/08/92	7/08/93	7/08/95

HISTORY

Kennco Explorations staked the Hoodoo North prospect in Hoodoo Creek, to the immediate south of the Dorothy Property, in 1966 on the strength of a prominent oxidized zone enhanced by anomalous silt geochemistry. Geological and geochemical assessment work demonstrated the presence of several porphyry plugs and pyritic breccias and coincident Mo-Cu-Pb-Zn-Ag soil anomalies.

Part of the Hoodoo South showing was examined for Amax in 1965, but no work was recommended and the claims subsequently lapsed.

Since 1968, the Hoodoo North prospect has been held by several other individuals, but no assessment work was applied between 1968 and 1977.

Amax Potash Limited staked the property in July, 1977 during a regional reconnaissance program. In 1978 Amax carried out a preliminary mapping (scale 1:5000) and sampling program both to the north and south of Hoodoo Creek.

In 1979 Utah Mines Ltd. optioned the Hoodoo Creek property from Amax Potash Limited. Additional mapping and sampling, mainly to the east and south of Amax's mapping, was done during June to August of 1979.

The 1978 and 1979 mapping and sampling program confirmed the presence of several mineralizing events which could indicate the presence of porphyry Cu-Mo, Mo or Cu mineralization associated with the high level, young (Miocene) intrusive complexes in Hoodoo Creek.

Two NQ diamond drill holes were completed from August to October, 1979. The first hole was designed to test a highly altered and pyritized quartz porphyry with minor molybdenite mineralization. This hole failed to test the target because it intersected a post-mineral dyke at the estimated target depth, and it followed this dyke for the duration of the hole. The second hole which was designed to intersect the fringe of a large breccia unit, intersected the breccia unit but had to be abandoned due to drilling difficulties. The breccia contained mineralized (molybdenite) fragments.

REGIONAL GEOLOGY

The property lies near the centre of the Coast Plutonic Complex (Coast Crystalline Belt), a tectonic belt of gneisses, schists and granitoid rocks emplaced during the Mesozoic and Early Tertiary (Figure 3). The metamorphic grade of these rocks are mostly greenschists with smaller areas of either unmetamorphosed or amphibolite grade rocks (Figure 4).

At Hoodoo Creek an intrusive/extrusive complex of Miocene age is superimposed on the older Coast Plutonic Complex. This complex lies within a 70 km long northwesterly trending belt of Miocene-Pliocene rocks which extends from Franklin Glacier (in the southeast) to Mt. Silverthrone (in the northwest). At Franklin Glacier, 20 km southeast of the Dorothy Property, a quartz monzonite stock (6.9 m.y.) and younger porphyry dykes (3.2 m.y.) intrude co-magmatic rhyolitic and feldspar porphyry tuffs, agglomerates and flows. Between Franklin Glacier and Hoodoo Creek, pyritic Miocene stocks with traces of molybdenite are largely buried by ice fields. In the Mt. Silverthrone area, 50 km northwest of Hoodoo Creek, undated but obviously pre-glacial columnar basalt and ash flows occur over an area of 300 sq. km and attain a maximum thickness of 1000 m. Small basalt plugs and minor quartz porphyry dykes were noted near the toe of the Klinaklini Glacier between Hoodoo Creek and Mt. Silverthrone.

LOCAL GEOLOGY

The local geology of the claim area is known from the GSC O.F. 1163 and from extensive mapping (scale 1:5,000) by Amax Potash Limited in 1978, and Utah Mines Ltd. in 1979, in Hoodoo Creek to the immediate south of the Dorothy Property(Figure 5).

Several stocks, dykes and breccias of Tertiary age intrude the Coast Plutonic Complex (CPC) of gneisses, diorites and granodiorites. Fifteen units have been identified in the area, and they are described below in order of apparent age.

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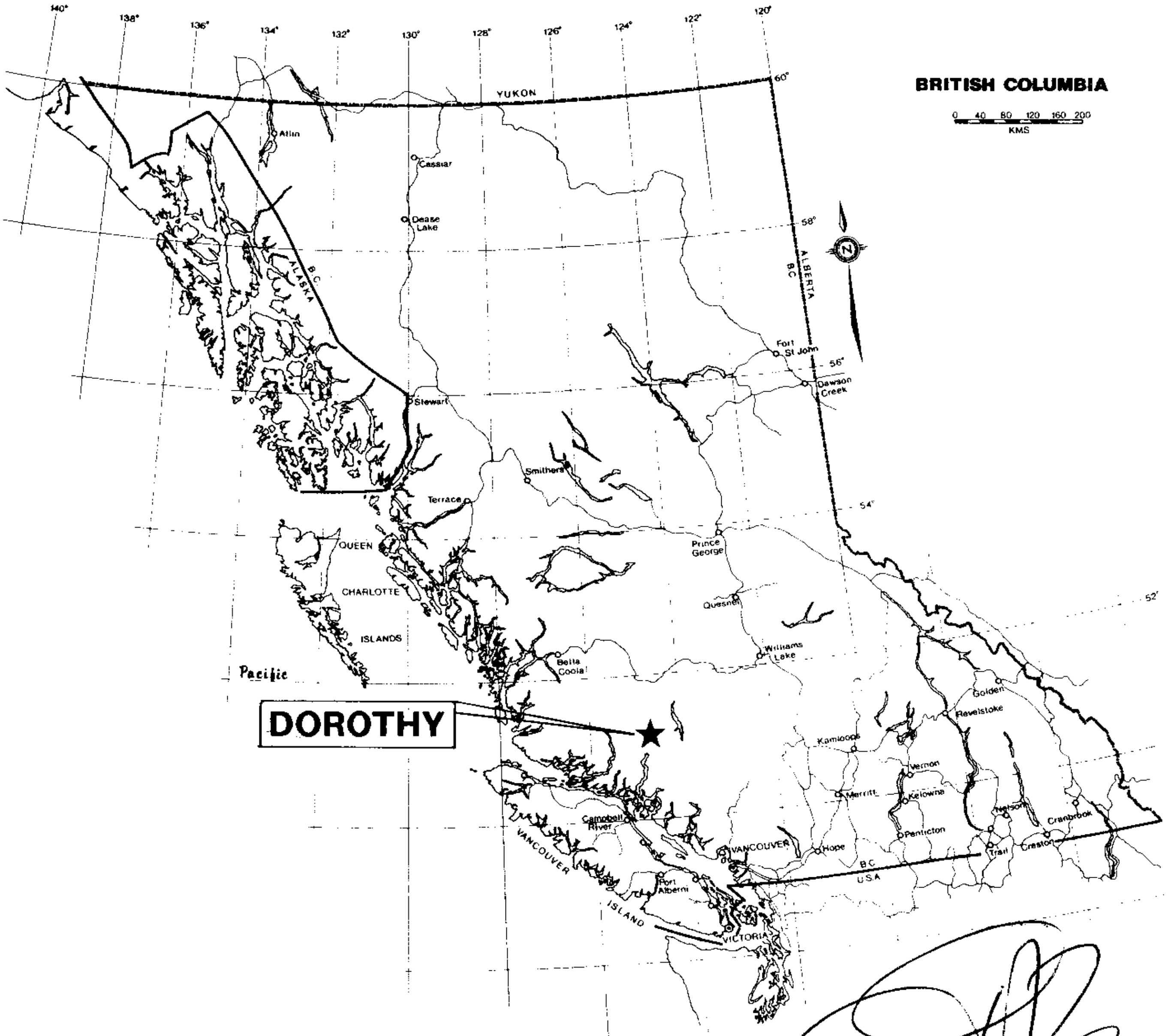

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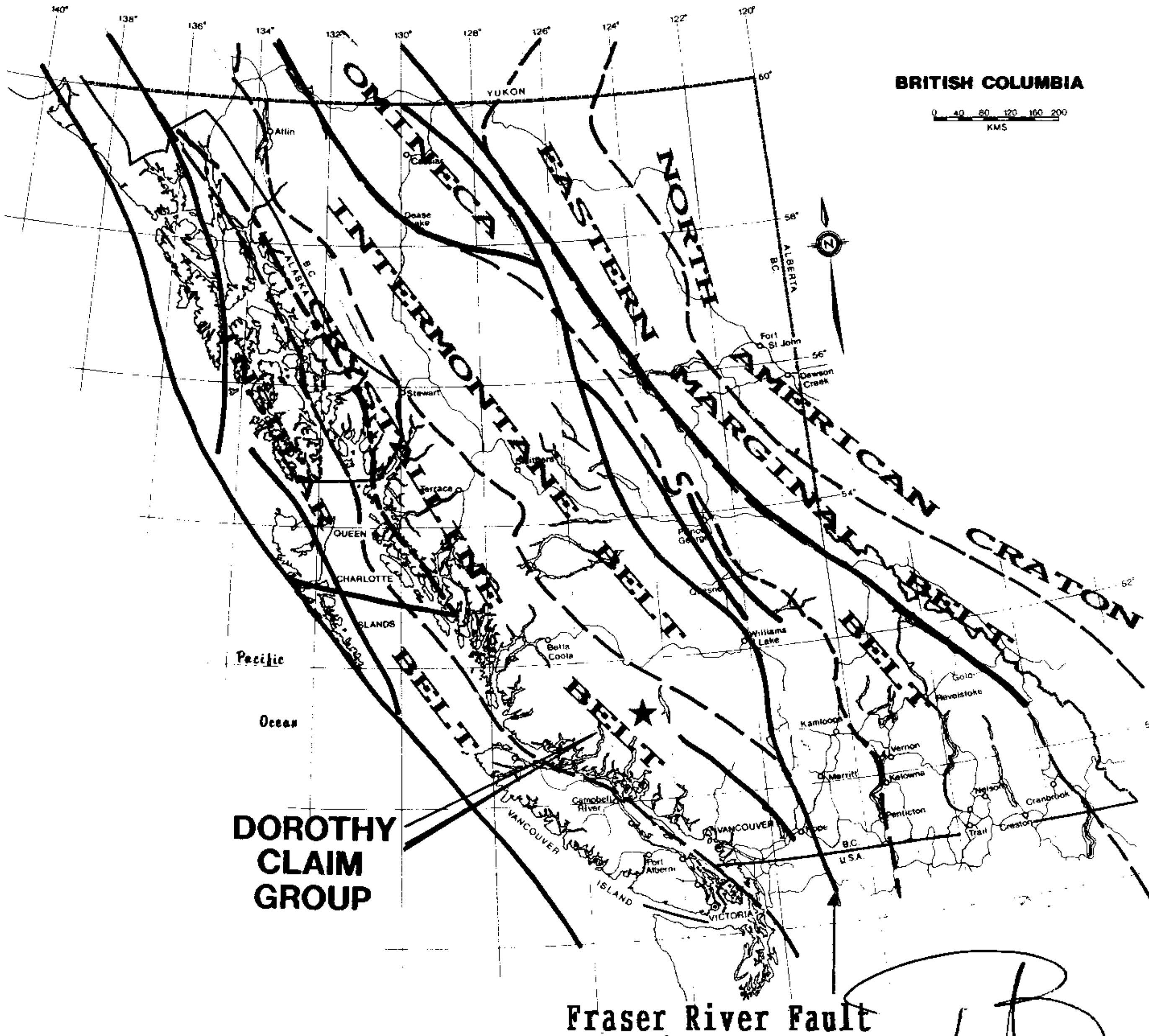
DOROTHY CLAIM GROUP

NTS- 92P/4E

LOCATION MAP

	Date: Sept., 1993
Data: T. Bruland	FIGURE 1



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TECTONIC BELTS

LEGEND

—— Regional Strike-slip Faults

– – – Coast Range Megalineament

DRAWN: LL

DATE: SEPT. 1993

FIG. 3

LEGEND (Figure 4)

METAMORPHIC FACIES AND ZONES

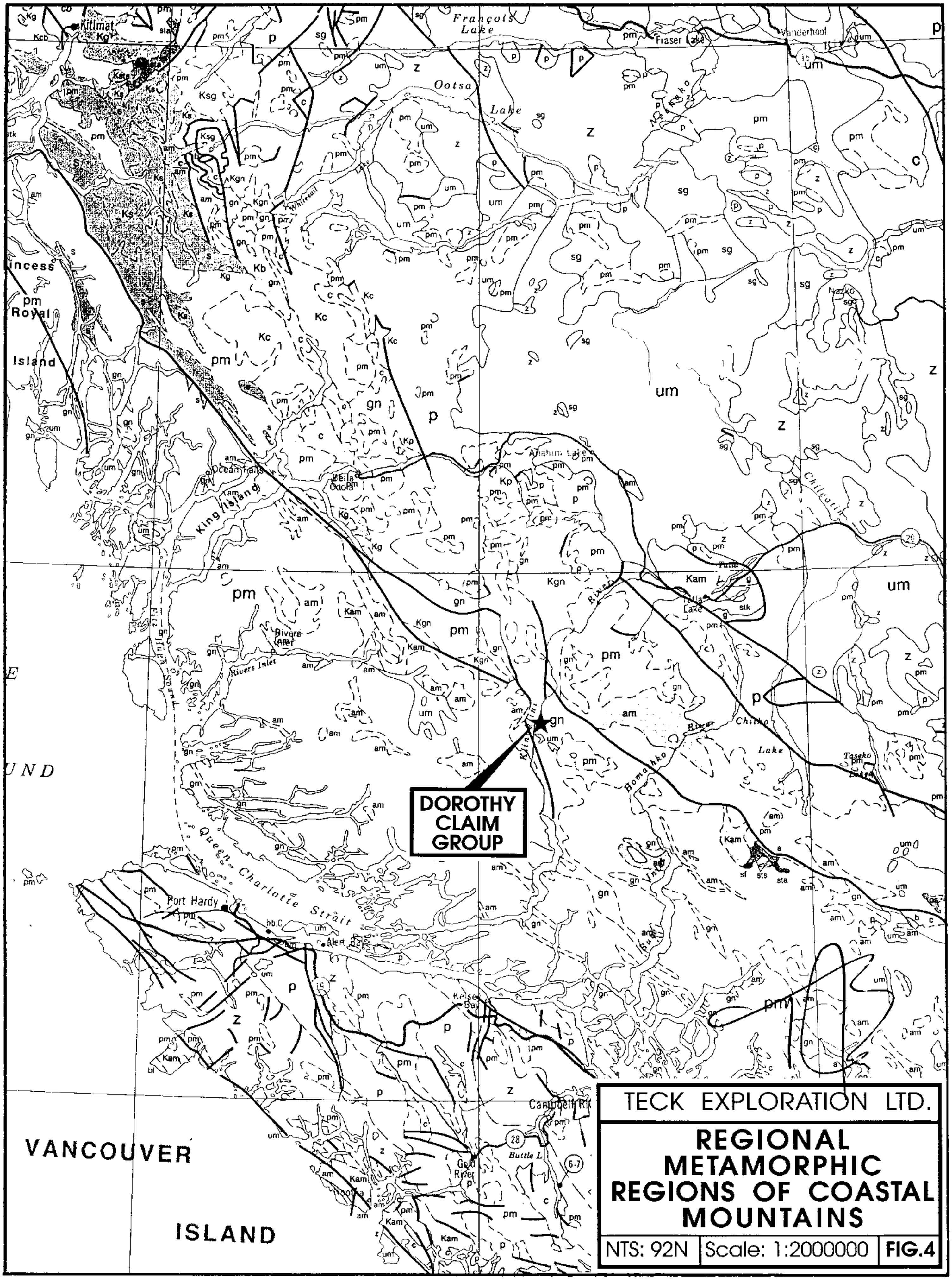
um Unmetamorphosed

gn Undivided Greenschist facies

am Undivided Amphibolite facies

pm Post metamorphic intrusions or intrusions with no signs of metamorphism although of pre- or syn-metamorphic age

(Extracts from legend of the GSC map 1714A, Metamorphic Map of the Canadian Cordillera, 1991)



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REGIONAL METAMORPHIC REGIONS OF COASTAL MOUNTAINS

NTS: 92N | Scale: 1:2000000 | FIG.4

Coarse grained garnet-quartz-feldspar-biotite gneiss (GQFBG) of the CPC of Mesozoic or earlier age occur in restricted areas including the ridge to the south and west of the Glacier Cirque.

Hornblende diorite and quartz diorite (HD/QD) of the CPC of Mesozoic or earlier age which occur in the south slope of the South Ridge, is coarse grained, equigranular and unfoliated to gneissic .

Quartz monzonite (breccia) (QMB) is coarse grained, leucocratic brecciated with a light grey matrix and small white quartz veins (widely spaced). A QMB stock of unknown dimensions appears to be the first intrusion into the CPC. This intrusion appears to be brecciated on a large scale with individual fragments being one meter of greater in size. The matrix or the breccia is fragmented quartz monzonite or smokey white quartz veins.

After the emplacement of the QMB, the relationships among several of the other intrusive events become unclear. Crosscutting evidence between different units are not conclusive as they are seen to cut one another.

Intrusive breccia (IB), may be the next large intrusive phase. Subangular fragments (3 mm to 1 meter) of diorite, gneiss, felsic volcanics, rare quartz porphyry and purple volcanics in a grey to grey-green clastic matrix is found as a circular shaped body suggesting that it was intruded as a pipe. Near its margins the IB is commonly intensely pyritized. Pyrite tends to surround fragments, suggesting that the rock was largely unconsolidated at the time of pyritization. The breccia forms an east-west elongate oval in the north slope of Hoodoo Creek. Gradational contacts exists between the IB and the andesitic pyroclastics and flows and at the contacts with the lahar breccia. It is suggested that both these later units may be extrusive equivalents of the QMB. The andesitic pyroclastics and flows are made up largely of the QMB matrix, while the lahar breccia is made up mainly of the blown off capping rock that the IB pipe now occupies.

Quartz-feldspar-biotite porphyry (quartz monzonite) (QFBP) consists of prominent quartz, feldspar and biotite phenocrysts in a fine grained, pale green groundmass. The QFBP forms an east-west elongate stock for 1000 meters on the southeast margin on the IB in the north slope of Hoodoo Creek. This intrusion is highly fractured. Age relationships between IB and QFBP are unclear. Fragments which may be quartz monzonite of QFBP are found within the breccia, while a sharp contact relationship between IB and QFBP shows that the QFBP intrudes the IB.

Dacite dykes (DD) occur as prominent swarms, and they are characteristically dark blue-grey, with feldspar and rare quartz phenocrysts in a flinty, siliceous matrix. The dykes cut several rock units on the north side of Hoodoo Creek. A small stock or large dyke occurs southeast of the Dorothy Property.

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Dacite breccia (DB) is characterized by the presence of angular diorite fragments in a blue dacite groundmass. Five small bodies of DB are found along or near the southern margin of the QFBP, and they all intrude diorites of the CPC.

Sericite quartz porphyry (QP) contains 5% 2-3 mm quartz eyes and 5% disseminated pyrite in a fine grained sericitic groundmass. It also contains minor disseminated molybdenite as well as molybdenite in small narrow quartz veins. A stock of pyritized QP to the south of the Dorothy Property is generally highly pervasively altered with matrix of feldspars altered to sericite and/or kaolin.

Age relationships between the QP and the IB are uncertain as the IB may contain fragments of QP, but QP dykes are mapped as cutting the IB along its northern boundary.

"Bughole" quartz porphyry (BQP) consists of large, prominent quartz phenocrysts and blebs of leached kaolinite after feldspar in a creamy rhyolitic matric. It contains up to 1% disseminated pyrite. Dykes of the BQP form a northwest trending swarm from Hoodoo Creek.

Feldspar-hornblende-(quartz) porphyry dykes (FHQP) postdates the BQP and form a dense swarm. The dykes are variable in composition and texture. Most consist of feldspar±hornblende±quartz phenocrysts in a feldspathic groundmass. Clay alteration of the feldspar and chlorite alteration of mafic minerals are usually present. There appear to be two or more ages of the FHQP (one pre and one post QP). The dykes form a northwest-southeast dyke swarm on the north side of Hoodoo Creek

The lahar breccia (LB) consists of subrounded cobble to boulder sized fragments of mainly quartz diorite and gneiss of the CPC and minor amounts of granite and white silicious rocks cemented by a sandy clastic matrix. It may be the exhalative equivalent to the IB that has been laid down on a pre-existing surface, and it may grade downwards and laterally into the IB. The LB outcrops in the southern cliff face of Glacier Creek and along the western part of the South Ridge.

Andesite and basaltic dykes (A&BD) cut all the rock units in the area except for the feldspar porphyry stock. The dykes which are similar to the DD, are unmineralized. They have an almost north-south strike and vertical dips.

Rhyolite breccia (RB) contains fragments with an average grain size of less than 1 cm. The fragments may be of any rock type from acidic to diorite gneiss. It occurs in the eastern part of Hoodoo Creek where it forms a northeast-southwest series of small breccia pipes (maximum 100 by 200 meters). They are believed to be fault controlled, with carbonate alteration of veinlets found within fault zones close to the breccias.

Andesitic pyroclastics and flows (AP&F) consists of massive flows and pyroclastics of andesitic composition, and they contain <1% disseminated pyrite.

LEGEND (Figure 5)

QUATERNARY (Pleistocene and Recent)

Q Till, gravel, sand and alluvium
IC Ice field/glacier

TERTIARY (Upper Miocene, Pliocene, and (?) Younger)

uTvb Volcanic breccia

COAST PLUTONIC COMPLEX

gap Aplitic granodiorite

tqd Tonalite and quartz diorite

qd Quartz diorite

dqd Diorite and quartz diorite

CENTRAL GNEISS COMPLEX

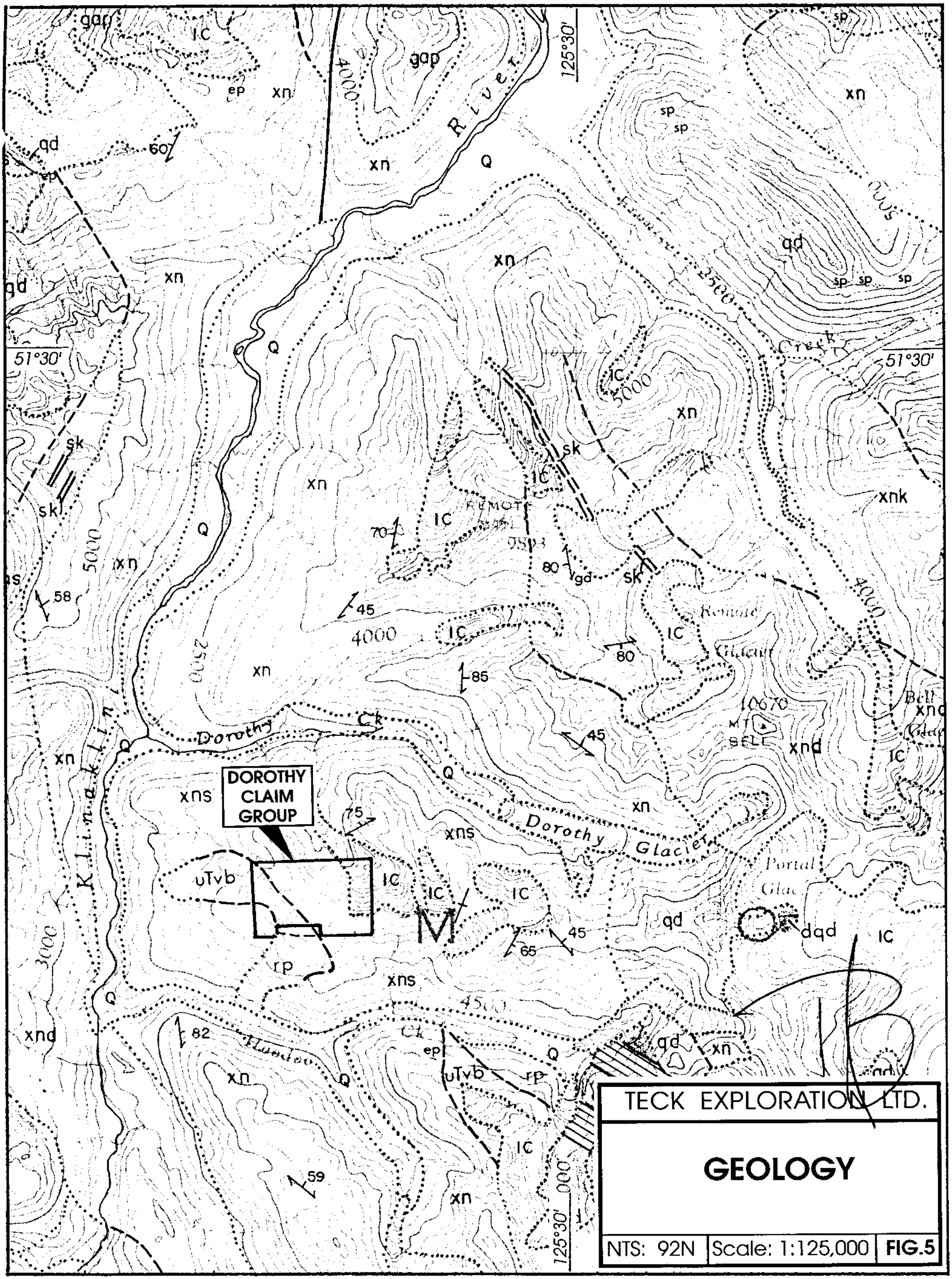
xn Granitoid gneiss
xns Siliceous granitoid gneiss
xnd Dioritic granitoid gneiss and/or dioritic complex

sk Skarn

SYMBOLS

ep Epidote
sp Sphene

(Extract from legend of the GSC O.F. 1163, Mount Waddington 92N, 1985)



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GEOLOGY

NTS: 92N	Scale: 1:125,000	**FIG.5**

Feldspar porphyry (FP) appears to be the last intrusive event in the area. It consists of feldspar and minor biotite phenocrysts in a grey-green fine grained groundmass. A large stock of FP is located in the southwest corner of the property. It forms a >1000 meters long and 600 meters wide elongated north-south stock bordering LB both to the east and west.

MINERALIZATION

Previous work in the area established the presence of Porphyry Cu-Mo, Mo or Cu mineralization in Hoodoo Creek. The intrusions are anomalous in copper, molybdenum, gold, zinc, and silver, and can be separated into five different mineralized intrusive phases.

1) Molybdenum and/or copper in the IB.
Disseminated pyrite, minor chalcopyrite, sphalerite and rare malachite within the IB matrix indicate that the breccia and/or its intrusive stock equivalent at the base of the breccia pipe may contain a copper and/or molybdenum deposit.

   Fragments of white siliceous rock with disseminated molybdenite and molybdenite veinlets within the IB indicate that the breccia has broken through a mineralized body containing molybdenum.

2) Copper and Molybdenum in the main QFBP body.
Pyrite, chalcopyrite and molybdenite are fracture filling and to a lesser extent accessories in quartz veinlets. Pyrite is the main sulphide with minor molybdenite and chalcopyrite.

3) Copper in the DB.
DB contains minor amounts of sulphides, mainly pyrite with minor chalcopyrite as disseminations and fracture fillings. A possible porphyry copper deposit may be associated with this intrusive phase.

4) Molybdenum and gold in the QP.
Anomalous rock geochemical values of molybdenum and gold are believed to be related to a possible porphyry molybdenum deposit.

5) Possible "Henderson" type molybdenum mineralization associated with the BQP.
The BQP resembles the "Bughole" quartz porphyry at the Henderson Mine in Colorado where it is associated with the mineralizing stock.

Minor amount of disseminated pyrite is found in the matrix of the RB.

Some highly oxidized base metal veins occur in the area. These veins, up to 20 cm wide, contain pyrite, chalcopyrite, sphalerite, and quartz with or without gold and silver values. The veins are found within faults and shears and are characteristic of fault controlled mineralization in that they pinch and swell. They are important since similar veins occur around economic porphyry deposits.

The newly discovered retrograde zinc skarn mineralization (see below) identified in CPC gneiss boulders from Glacier Cirque are believed to be of pre-Miocene age, and unrelated to the Miocene Porphyry Cu-Mo, Mo or Cu mineralization in Hoodoo Creek.

THE 1992 EXPLORATION PROGRAM

The objective of the exploration program was to locate the source of the Au, Cu and Zn anomalous RGS samples from the southern tributaries of Dorothy Creek and Hoodoo Creek.

Stream sediments and soil/talus fine were collected on the property to locate the source of the RGS anomalies.

The few outcrops on the claim group were mapped and prospected for bedrock mineralization, and the moraines were prospected for mineralization..

Magnetometer survey was completed to locate intrusives or magnetic mineral concentrations on the property.

Whole rock analysis, Tl, Ga & Ge rock analysis, thin section descriptions, fluid inclusion study and electron probe microanalysis study were completed to identify the original lithology, mineralizing events and environment and the metamorphic grade of the geology and mineralization.

STREAM SEDIMENT, SOIL AND TALUS FINE SURVEYS

Stream sediment samples were collected from all the creeks on the property and, if possible, on regular intervals in the creeks. The sample locations are plotted on Figure 6.

Thirty four stream sediment were collected from the property. All samples were sent to Chemex Labs Ltd. in North Vancouver for analysis. Each sample was dried and sieved to -80 mesh. The samples were analyzed for gold by aqua-regia digestion and atomic absorption (AA) finish. Determinations for 32 additional elements (Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sc, Sr, Ti, Tl, U, V, W, and Zn) were done by nitric-aqua-regia digestion and analysis by inductively coupled plasma (ICP) spectroscopy (Appendix 2).

The survey returned up to 345 ppb Au, 6 ppm Ag, 1,328 ppm Zn, 248 ppm Cu and 156 ppm Pb. All the samples in Glacier Cirque are anomalous (>200 ppm) in Zn (the highest value, 1,328 ppm, is located at the toe of the ice field at the head of the cirque) with or without anomalous Cu (>100 ppm) and/or Au (>50 ppb). The samples from the Main Cirque are anomalous in Zn (>100 ppm) especially towards the Glacier Cirque. The samples from Glacier Creek are anomalous (>200 ppm) in Zn (the highest value, 1,092 ppm, is located at the head of the valley) with or without anomalous Cu (>100 ppm) and/or Au (>50 ppb).

Soil or talus fine samples were collected from seven grid lines in Glacier Cirque and from two contour lines from Glacier Saddle to the South Ridge. The sample locations are plotted on Figure 6.

Ninety three soil/talus fine samples were collected from the property. All samples were sent to Chemex Labs Ltd. in North Vancouver for analysis. Each sample was dried and sieved to -80 mesh. The samples were analyzed for gold by aqua-regia digestion and atomic absorption (AA) finish. Determinations for 32 additional elements (Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sc, Sr, Ti, Tl, U, V, W, and Zn) were done by nitric-aqua-regia digestion and analysis by inductively coupled plasma (ICP) spectroscopy (Appendix 2).

The samples returned up to 1,920 ppb Au, 25 ppm Ag, 7,054 ppm As, 5,596 ppm Zn, 1,020 ppm Cu, 4,090 ppm Pb and 70 ppm Cd. The results outlined a large multi-element Zn-Cu-Pb±Au anomaly from Glacier Saddle to the South Ridge, and an extensive Zn±Au anomaly in Glacier Cirque.

PROSPECTING/ROCK SAMPLES

The prospecting/mapping was completed in Glacier Cirque, Glacier Creek and from Glacier Saddle to the South Ridge. The rough terrain constrain easy access to other parts of the property.

The prospecting located semi-massive and massive sulphide (sphalerite-pyrite ±chalcopyrite)-chlorite±garnet±epidote boulders in Glacier Cirque. These boulders could be traced along the moraine to the toe of the glacier at the head of the cirque.

Polymictic volcanic breccia and quartz±pyrite±sphalerite veins boulders were located in Glacier Creek.

Intense foliated schists with garnet and minor disseminated pyrite and/or magnetite were located in Glacier Saddle.

Large exposures of Miocene LB and FP were located along the South Ridge.

One hundred and twenty five rock samples were collected from these areas. Sample locations are plotted on Figure 6. The samples were sent to Chemex Labs Ltd. in North Vancouver, where they were crushed, split and pulverized to -150 mesh (>90%). They were analyzed for gold by standard fire assay and atomic absorption finish. Determinations for an additional 32 elements (Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sc, Sr, Ti, Tl, U, V, W, and Zn) were done by a nitric-aqua-regia digestion and analysis by inductively coupled plasma (ICP) spectroscopy (Appendix 2).

The results located Zn±Cu±Pb±Au±Ag mineralized moraine boulders in Glacier Cirque, Glacier Creek and on Glacier Saddle which returned up to 2,143 ppb Au, 1,029 ppm Ag, 2,450 ppm As, 17.0% Zn, 1.28% Cu, 0.45% Pb and 0.088% Cd .

WHOLE ROCK SAMPLES

Eight samples were collected for whole rock analysis in an attempt to establish the original lithology of these metamorphic rocks. The samples were sent to Chemex Labs Ltd. in North Vancouver for analysis. They were crushed, split and pulverized to minus 150 mesh (>90%). A prepared sample (0.100 g) is added to a lithium metaborate flux (0.70 g), mixed and fused at 1,050° C. The resulting melt is then cooled and dissolved in 100 ml of 4% nitric acid. This solution is then analyzed by inductively coupled plasma atomic emission spectroscopy (ICP-AES) for Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, Ba, Nb, Sr, Y and Zr. The results are corrected for spectral inter-element interferences. For Rb analysis an ionization suppressant is added to an aliquot of the solution and analyzed by AA.

For loss on ignition (LOI) a porcelain crucible is dried in an oven at 105° C, cooled and weighted. A prepared sample (1.00 g) is added to the crucible and then ashed at 1,000° C for one hour. The sample is then cooled in a desiccator, weighed and the LOI is calculated.

A prepared sample (1.00 g) is digested with concentrated nitric and aqua regia acids at medium heat for two hours. The acid solution is diluted to 25 ml with demineralized water, mixed and analyzed by inductively coupled plasma atomic emission spectroscopy (ICP-AES) for Co, Cu, Mo, Ni, Pb, and Zn. The results are corrected for spectral inter-element interferences. The whole rock analysis are enclosed in Appendix 4 and the sample locations are plotted on Figure 6.

The analytical results cover a wide value range for most oxides and the additional elements. An allochemical alteration in connection with the metamorphism has masked the original composition, and no useful information could be extracted from these results.

Tl, Ga & Ge ROCK ANALYSIS

Thallium is a promising guide to VMS and gold mineralization. Kuroko-type mineralization, especially pyrite-containing ore, has high Tl content (up to 800 ppm). In addition to Kuroko-type deposits, some Au-Ag veins, Pb-Zn veins and Besshi-type deposits also contain a certain amount of Tl, but they are not as enriched as in Kuroko-type deposits. Epithermal, xenothermal and skarn deposits usually have less than 10 ppm Tl. Both Ga and Ge can further define ore type.

The five highest grade zinc samples were analyzed for Tl, Ga and Ge by Chemex Labs Ltd. in North Vancouver. A prepared sample (1.00 g) is weighted into a teflon beaker and digested with hydrofluoric, nitric and perchloric acid to dryness. The residue is taken up with 25 ml of 10% hydrochloric acid and the elements are determined by standard atomic absorbtion spectroscopy for Ge.

A prepared sample (2.00 g) is digested with hydrofluoric, nitric and perchloric acid to dryness. A potassium iodide solution is added and the resulting complexes of gallium and thallium are extracted with trioctylphosphine oxide (TOPO) into methylisobutylketone (MIBK). The elements are then determined by atomic absorption spectroscopy with background correction for Tl and Ga. All the analysis are enclosed in Appendix 5 and the sample locations are plotted on Figure 6.

All the five samples analyses returned background values for the three elements (<1 ppm Tl, <10 ppm Ga & <50 ppm Ge) eliminating any possible connection with VMS or gold mineralization.

MAGNETOMETER SURVEY

Total Field Magnetometer survey were carried out on 12.275 km of grid and contour lines in Glacier Cirque, Glacier Creek and one a line from Glacier Saddle to the South Ridge. Magnetic measurements were collected on 25 m station spacing along the grid lines (Figures 7).

A Scintrex Integrated Portable Geophysical System (IGS-2) was used for the surveys. This is a combined total field magnetics and a VLF-EM (IGS-2/MP4/VLF-4) system. A Scintrex MP-3 unit was used as base station magnetometer for diurnal correction of the magnetic data. Base station readings were taken at a set location on the grid, and diurnal corrections of the data were performed daily.

The magnetic data has a range of 1,291 gammas, with recorded values between 57,466.5 and 56,175.5 gammas (Figures 7). However, most data are in the 56,300 to 56,900 gamma range. The survey located elevated magnetic values along the South Ridge, which is believed to reflect the Miocene LB and FP intrusions underlying the ridge. The small magnetic anomalies in Glacier Cirque or Glacier Creek are believed to reflect intrusions within the gneiss or pyrrhotite skarn.

THIN SECTION DESCRIPTIONS

Four rock samples were submitted for preparation and microscopic examination. All were prepared as polished thin sections.

The rocks of the suite were identified as skarns. Two samples are crudely banded with actinolite and epidote as major minerals (epidote predominates over actinolite) and diopside, sphene and ilmenite as accessories minerals. They contain traces of pyrrhotite, sphalerite an chalcopyrite.

The other two samples contain significant amounts of marmatitic sphalerite and pyrrhotite. The first sample is a typical skarn (garnet, carbonate and actinolite) with sulphides as irregular impregnations. The other sample consists predominantly of carbonate and quartz with sulphides as irregular pockets in a zone. This sample may be a skarnified metasediment, or possibly has exhalative affinities.

The complete descriptions are included as Appendix 6.

SUMMARY OF FLUID INCLUSION PETROGRAPHY AND MICROTHERMOMETRY DOROTHY CLAIM GROUP

A fluid inclusion study of four mineralized samples were completed to determine if the samples represent one or more mineralizing events, and to establish the mineralizing environment. Plotting of Homogenization Temperature vs. Salinity indicate a clustering of measurements between 150 and 450° C and less than 15 equiv. wt.% NaCl with the majority of measurements in the retrograde skarn field. The study is included as Appendix 7.

ELECTRON PROBE MICROANALYSES

The chemical compositions of individual garnet, pyroxene, amphibole and epidote grains from four thin sections were determined by electron probe microanalysis. Each grain was classified according to conventional mineralogical criteria. One sample contains two distinct garnet populations (andradites and grossular) while the other three samples contained only andradite. The garnet indicate amphibolite grade metamorphism for these samples. The pyroxene were all diopside indicating contact metamorphic origin of the samples. The amphiboles were identified as ferro-actinolite and ferro-pargasite indicating greenschist to amphibolite grade metamorphism. The study also identified clinozoisite and epidote indicating greenschist to amphibolite grade contact metamorphism of impure limestone (possible retrograde).

Formation of anhydrous minerals like pyroxene and garnets would require very high temperatures (700-900° C) and medium to high pressure (3-5 kb), these conditions can not be reached during regional metamorphism. The presence of ferro-pargasite suggests regional metamorphism, a fact that is supported by the presence of grossular. The mineral assemblage from these rocks are believed to represents retrograde regional and contact metamorphism of impure limestone. The study is included as Appendix 8.

CONCLUSIONS AND RECOMMENDATIONS

The 1992 exploration program on the Dorothy Property identified retrograde zinc skarn mineralization in boulders on the south slope of the Dorothy Creek. This type of mineralization has previously not been described from this area. The source of the boulders are believed to be in the vicinity of the ice field in Glacier Cirque and the ridge between Glacier Cirque and Glacier Creek.

The medium to high grade regional and contact metamorphic retrograde zinc skarn mineralization of Mesozoic age is believed to pre date the Miocene Porphyry Cu-Mo, Mo or Cu mineralization previously identified in Hoodoo Creek.

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Additional work in the Glacier Cirque and Glacier Creek area is recommended to locate the source of the zinc skarn mineralization. The gossans on both slopes of the ridge should be mapped. This needs to be done in late spring or early summer to reduce the rockfall hazard which in late summer becomes very active in the afternoon. Geophysical surveys (magnetic, SP and EM) over the ice field in Glacier Cirque and Glacier Creek. The target for the geophysical survey(s) would be pyrrhotite skarn mineralization.

REFERENCES

Deighton, J.R.: (1980) 1979 Report on the Geology, Geochemistry and Diamond Drilling of the BZT claims, Hoodoo Creek. Ass. Rpt. 8218

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Ney, C.S.: (1968) Geological and Geochemical Report on the Van Claims. Ass. Rpt. 1868.

Winkler, H.G.F. (1976) Petrogenisis of Metamorphic Rocks.

CERTIFICATE

I, Tor Bruland, of the city of White Rock, Province of British Columbia, do hereby certify:

1. I am a Consulting Geologist with Cascade Geological Services, 16126 12A Avenue, White Rock, B.C. V4A 6V9 on contract with Teck Exploration Ltd., 600-200 Burrard Street, Vancouver, B.C. V6C 3L9.

2. I am a graduate of the University of Bergen, Norway, with a Cand. Mag. (B.Sc.) degree in Geology (1977), and a Cand. Real. (M.Sc.) degree in Geology (1980).

3. I am a Professional Geoscientist with The Association of Professional Engineers and Geoscientists of the Province of British Columbia.

4. I have been practising my profession for 16 years, in Norway between 1977 and 1980, and since 1980 in British Columbia, Yukon and the western U.S.

5. This report is based on my own observations and the observations of people under my supervision on the DOROTHY Mineral Claim Group between June 10, 1992 and December 20, 1992.

6. I have no direct or indirect interest, nor do I expect to receive any interest, directly or indirectly, in the property or securities of Teck Corporation or Teck Exploration Ltd. or any of its affiliates.

7. I give my consent to the use of my name and this report for qualification requirements, but not for advertising purposes.

DATED at White Rock, British Columbia this 6th day of October, 1993.

TOR BRULAND, M.Sc., P.Geo.

APPENDIX 1

STATEMENT OF COSTS

STATEMENT OF COSTS

Salaries:		
F. Daley, District Manager, ½ day @300/day	$ 150.00	
T. Bruland, Project geologist 20½ days @ $210/day	4,305.00	
N. Gibson Geologist 8 days @ $195/day	1,560.00	
G. Lovang, Geotechnician 9 days @ $210/day	1,890.00	
K. Chubb, Geotechnician 13 days @ $190/day	2,470.00	
	$10,375.00	$10,375.00
Room and board 38 mandays @ $60/manday		2,280.00
Transportation 4 days @ $55/day		220.00
Aircraft charter (helicopter 12.75 hours @ $849.93/hour)		10,836.61
Drafting, maps and prints		750.00
Field equipment		105.39
Communication, freight, postage etc.		165.00
Computer rental 20 days @ $20/day		400.00
Computer and office supplies		53.46
Equipment rental		1,489.17
Petrography study		588.23
Fluid inclusion study		1,045.65
Electron microscope study		921.20
Analytical cost:		
127 stream samples @ $11.16/sample	$ 1,417.32	
125 rock samples @ $14.65/sample	1,831.25	
25 Cu, Zn, Pb or Cd @ $10.19/sample	254.75	
2 rush rock samples w/Zn or Cd analysis @ $14.54/sample	67.82	
8 whole rock analysis @ $30.33/sample	242.64	
5 samples for Tl, Ga & Ge analysis @ $15.19/sample	75.95	
	$ 3,889.73	3,889.73
	SUB TOTAL	$33,119.44
	7% GST	2,318.36
	TOTAL	**$35,437.80**

APPENDIX 2

ASSAY CERTIFICATES; STREAM SEDIMENTS, SOIL & TALUS FINE SAMPLES

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LTD.

350 - 272 VICTORIA ST.
KAMLOOPS, BC
V2C 1Z6

Project : DOROTHY/SIVA
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 20-JUL-92
Invoice No. : I9217383
P.O. Number :
Account :HPQ

CERTIFICATE OF ANALYSIS A9217383

SAMPLE	PREP CODE		Au NAA ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
489674	201	203	24	0.8	2.75	16	100	< 0.5	< 2	0.47	< 0.5	9	25	33	2.27	< 10	1	0.17	< 10	0.93	460
489675	201	203	22	0.2	0.97	< 2	70	< 0.5	< 2	0.59	< 0.5	8	14	33	1.91	< 10	1	0.10	< 10	0.68	355
489676	201	203	< 1	2.4	2.01	8	240	1.0	< 2	0.56	0.5	13	18	120	3.36	< 10	< 1	0.19	10	0.86	1955
489677	201	203	39	1.8	2.83	< 2	130	< 0.5	< 2	0.78	1.0	10	22	72	3.11	10	1	0.19	10	0.79	1245

CERTIFICATION: Hai D'Ma

Chemex Labs Ltd.
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British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LTD.

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Account :HPQ

CERTIFICATE OF ANALYSIS A9217383

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
489674	201	203	2	0.02	10	1520	8	2	2	37	0.11	< 10	30	78	< 10	84
489675	201	203	1	0.02	10	1580	12	2	2	20	0.07	< 10	< 10	41	< 10	112
489676	201	203	3	0.01	13	1380	116	4	3	98	0.01	< 10	< 10	54	10	500
489677	201	203	4	0.01	11	1410	78	2	4	91	0.03	< 10	< 10	63	10	404

CERTIFICATION: Hai D Ma

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220770
P.O. Number :
Account :EO

CERTIFICATE OF ANALYSIS A9220770

SAMPLE	PREP CODE		Au-AA ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
NWG101	201	229	15	0.8	0.96	< 2	80	< 0.5	2	0.85	1.5	12	12	87	1.63	10	< 1	0.08	< 10	0.43	425
NWG102	201	229	15	1.6	1.30	28	130	< 0.5	2	1.43	1.5	16	24	68	2.57	10	< 1	0.14	< 10	0.80	1480
NWG103	201	229	5	0.8	1.00	14	110	< 0.5	2	1.40	1.0	12	21	55	1.91	10	< 1	0.12	< 10	0.63	1060
NWG104	201	229	5	0.2	0.80	4	120	< 0.5	< 2	0.95	< 0.5	8	12	27	1.58	10	< 1	0.17	< 10	0.58	590
NWG105	201	229	< 5	< 0.2	0.63	< 2	40	< 0.5	2	0.63	< 0.5	6	9	24	1.30	10	< 1	0.07	< 10	0.39	260
NWG106	201	229	25	< 0.2	0.98	8	70	< 0.5	2	0.73	< 0.5	11	16	34	2.10	10	< 1	0.12	< 10	0.66	405
NWG107	201	229	50	0.8	0.93	12	100	< 0.5	2	0.89	0.5	10	15	38	1.96	10	< 1	0.16	< 10	0.58	815
NWG108	201	229	45	1.4	0.96	22	100	< 0.5	2	1.44	1.5	13	20	60	1.98	10	< 1	0.11	< 10	0.59	1145
NWG109	201	229	< 5	0.6	1.20	4	190	< 0.5	< 2	0.62	0.5	11	17	37	2.18	10	< 1	0.23	< 10	0.80	1225
NWG110	201	229	< 5	1.2	1.45	18	230	< 0.5	< 2	0.70	2.0	14	21	73	2.52	10	< 1	0.19	< 10	0.79	1235
NWG111	201	229	< 5	0.2	1.39	10	160	< 0.5	< 2	0.75	2.0	11	20	71	2.17	10	1	0.16	< 10	0.74	570
NWG112	201	229	345	3.0	1.27	50	180	< 0.5	< 2	0.63	5.5	17	20	73	3.46	10	< 1	0.18	< 10	0.70	5380
NWG113	201	229	15	6.0	1.29	36	330	< 0.5	< 2	0.62	4.5	19	23	76	3.75	10	1	0.18	< 10	0.74	7490
NWG114	201	229	25	1.6	1.98	28	400	< 0.5	< 2	0.84	1.0	21	26	105	4.10	20	1	0.33	< 10	1.11	1355
NWG115	201	229	25	0.8	2.09	22	260	< 0.5	< 2	0.75	2.5	16	26	133	3.55	10	2	0.33	< 10	0.98	835
NWG116	201	229	5	0.2	2.65	8	200	< 0.5	< 2	2.10	2.0	23	49	192	4.09	20	1	0.33	< 10	1.45	995
NWG117	201	229	15	0.8	2.43	6	260	< 0.5	< 2	0.71	4.5	25	53	155	4.52	20	< 1	0.65	< 10	1.75	1040
NWG118	201	229	25	0.8	1.11	2	110	< 0.5	< 2	0.86	2.0	11	16	90	1.88	10	1	0.11	< 10	0.56	525
NWG119	201	229	5	0.2	0.93	< 2	170	< 0.5	< 2	0.77	1.5	10	16	59	1.65	10	< 1	0.09	< 10	0.45	385
NWG120	201	229	170	0.2	2.16	16	120	< 0.5	< 2	0.62	3.0	36	48	190	4.71	20	< 1	0.16	< 10	1.25	1275
NWG121	201	229	35	0.2	2.33	< 2	110	< 0.5	< 2	0.70	2.5	24	53	140	4.44	20	< 1	0.19	< 10	1.33	1230
NWG122	201	229	< 5	0.4	3.03	36	190	< 0.5	< 2	0.38	0.5	27	47	98	4.19	20	< 1	0.28	10	1.31	1440
NWG123	201	229	15	1.0	3.59	18	200	< 0.5	< 2	0.39	< 0.5	24	49	136	3.72	20	2	0.37	< 10	1.38	710
NWG124	201	229	5	0.4	3.25	10	170	< 0.5	< 2	0.35	< 0.5	29	39	115	3.38	10	< 1	0.23	< 10	1.25	800
NWG125	201	229	15	0.4	3.13	< 2	120	< 0.5	< 2	0.32	0.5	16	38	98	3.21	10	< 1	0.22	< 10	1.12	695
NWG126	201	229	< 5	< 0.2	2.84	16	160	< 0.5	< 2	0.31	< 0.5	24	25	90	3.64	10	1	0.24	< 10	1.07	1185
NWG127	201	229	10	0.8	3.16	12	140	< 0.5	< 2	0.25	1.0	29	31	127	4.02	10	< 1	0.22	< 10	1.21	665
NWG128	201	229	< 5	< 0.2	2.80	2	110	< 0.5	< 2	0.26	< 0.5	16	27	89	3.29	10	1	0.22	< 10	1.07	370
NWG129	201	229	10	< 0.2	2.82	8	140	< 0.5	< 2	0.15	0.5	29	33	121	4.12	10	< 1	0.23	< 10	1.13	1110
NWG130	201	229	5	< 0.2	4.45	14	130	< 0.5	< 2	0.16	1.0	22	41	97	5.72	10	< 1	0.13	< 10	1.13	1355
NWG131	201	229	5	< 0.2	3.64	6	120	< 0.5	< 2	0.16	< 0.5	19	37	182	4.90	10	< 1	0.21	< 10	1.08	645
NWG132	201	229	1920	25.4	2.31	7050	240	< 0.5	10	0.10	3.0	5	22	210	12.30	20	1	0.38	< 10	0.45	255
NWG133	201	229	10	< 0.2	4.15	26	180	< 0.5	< 2	0.20	1.0	27	38	147	5.26	10	< 1	0.14	< 10	1.17	1400
NWG134	201	229	< 5	0.4	3.59	46	110	< 0.5	< 2	0.19	3.0	21	91	220	6.20	20	1	0.34	< 10	1.38	1540
NWG135	201	229	< 5	0.8	3.86	6	180	< 0.5	< 2	0.28	5.0	29	44	183	5.35	10	< 1	0.13	10	1.38	1505
NWG136	201	229	15	0.2	2.20	28	180	< 0.5	< 2	0.42	70.0	45	18	1020	7.10	20	1	0.20	10	1.09	6660
NWG137	201	229	< 5	1.4	1.79	20	160	< 0.5	< 2	0.06	2.5	9	6	532	8.40	10	< 1	0.82	20	0.14	1660
NWG138	201	229	70	1.2	2.98	16	160	< 0.5	< 2	0.16	< 0.5	12	35	194	5.68	10	< 1	0.33	10	0.95	660
NWG139	201	229	< 5	< 0.2	2.29	16	200	< 0.5	< 2	0.02	< 0.5	2	30	187	9.55	20	< 1	0.42	10	0.43	330
NWG140	201	229	15	0.2	2.85	30	180	< 0.5	< 2	0.09	0.5	11	28	227	7.33	10	1	0.31	10	0.75	1180

CERTIFICATION: Yhai D Ma

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220770
P.O. Number :
Account :EO

CERTIFICATE OF ANALYSIS A9220770

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
NWG101	201	229	< 1	0.06	13	1110	12	< 2	3	29	0.09	< 10	< 10	43	< 10	338
NWG102	201	229	< 1	0.03	23	1170	138	2	4	38	0.05	< 10	< 10	48	< 10	400
NWG103	201	229	< 1	0.03	17	1260	40	< 2	4	35	0.05	< 10	< 10	39	< 10	258
NWG104	201	229	< 1	0.03	7	1770	12	2	3	23	0.06	< 10	< 10	40	< 10	78
NWG105	201	229	< 1	0.02	7	1520	4	< 2	2	22	0.06	< 10	< 10	31	< 10	50
NWG106	201	229	< 1	0.03	11	1710	12	< 2	3	26	0.07	< 10	< 10	48	< 10	98
NWG107	201	229	< 1	0.03	10	2160	30	< 2	4	23	0.06	< 10	< 10	43	< 10	150
NWG108	201	229	< 1	0.03	17	1440	96	< 2	4	35	0.04	< 10	< 10	36	< 10	318
NWG109	201	229	< 1	0.02	10	1580	36	2	3	21	0.07	< 10	< 10	46	< 10	156
NWG110	201	229	< 1	0.03	17	1200	42	2	5	39	0.09	< 10	< 10	62	< 10	378
NWG111	201	229	< 1	0.04	15	1270	24	4	4	50	0.10	< 10	< 10	59	< 10	436
NWG112	201	229	< 1	0.01	17	1890	154	2	4	24	0.03	< 10	< 10	44	< 10	904
NWG113	201	229	1	0.02	23	1170	190	2	7	37	0.03	< 10	< 10	53	< 10	678
NWG114	201	229	< 1	0.05	19	1920	74	2	8	35	0.10	< 10	< 10	84	< 10	358
NWG115	201	229	< 1	0.07	20	1040	66	2	8	29	0.13	< 10	< 10	78	< 10	738
NWG116	201	229	< 1	0.12	38	860	26	4	11	54	0.24	< 10	< 10	135	< 10	622
NWG117	201	229	< 1	0.04	40	1510	88	2	7	32	0.23	< 10	< 10	105	< 10	1330
NWG118	201	229	< 1	0.06	14	970	16	2	4	27	0.11	< 10	< 10	49	< 10	428
NWG119	201	229	< 1	0.05	16	1030	6	2	3	29	0.08	< 10	< 10	56	< 10	268
NWG120	201	229	< 1	0.05	51	1130	38	4	8	37	0.15	< 10	< 10	90	< 10	786
NWG121	201	229	< 1	0.06	42	1100	36	< 2	9	38	0.14	< 10	< 10	101	< 10	488
NWG122	201	229	< 1	0.01	36	920	46	4	9	17	0.08	< 10	< 10	102	< 10	404
NWG123	201	229	1	0.02	32	1350	60	6	8	24	0.12	< 10	< 10	110	< 10	356
NWG124	201	229	< 1	0.02	38	1150	44	6	7	18	0.05	< 10	< 10	105	< 10	274
NWG125	201	229	1	0.01	23	1650	88	4	5	19	0.11	< 10	< 10	91	< 10	538
NWG126	201	229	< 1	0.01	31	1090	68	4	6	16	0.09	< 10	< 10	87	< 10	284
NWG127	201	229	< 1	0.01	37	1240	128	< 2	6	15	0.06	< 10	< 10	84	< 10	406
NWG128	201	229	1	0.01	23	1120	20	2	4	14	0.07	< 10	< 10	74	< 10	184
NWG129	201	229	< 1	0.01	42	1000	122	< 2	6	10	0.05	< 10	< 10	76	< 10	420
NWG130	201	229	< 1	0.01	26	1270	92	2	9	12	0.28	< 10	< 10	119	< 10	476
NWG131	201	229	1	0.01	26	1500	54	2	7	14	0.18	< 10	< 10	105	< 10	414
NWG132	201	229	< 1	0.08	7	1560	4090	8	9	172	0.01	< 10	< 10	69	< 10	600
NWG133	201	229	1	0.01	28	1600	72	4	7	17	0.14	< 10	< 10	113	< 10	640
NWG134	201	229	< 1	0.03	20	1230	64	8	9	16	0.01	< 10	< 10	95	< 10	920
NWG135	201	229	< 1	0.03	41	1500	82	2	8	36	0.18	< 10	< 10	109	< 10	1415
NWG136	201	229	< 1	0.01	41	2650	276	4	4	21	< 0.01	< 10	< 10	62	< 10	5600
NWG137	201	229	< 1	0.02	6	1490	172	2	3	150	< 0.01	< 10	< 10	10	< 10	612
NWG138	201	229	3	0.02	17	1570	100	2	9	24	0.15	< 10	< 10	90	< 10	484
NWG139	201	229	< 1	0.02	4	1280	82	4	12	19	< 0.01	< 10	< 10	51	< 10	260
NWG140	201	229	8	0.01	15	1660	200	4	11	23	0.04	< 10	< 10	77	< 10	750

CERTIFICATION: Hai D'Ma

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220770
P.O. Number :
Account :EO

CERTIFICATE OF ANALYSIS A9220770

SAMPLE	PREP CODE		Au-AA ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
NWG141	201	229	< 5	0.4	2.73	26	150	< 0.5	< 2	0.10	< 0.5	12	24	258	7.18	10	1	0.27	< 10	0.77	905
NWG142	201	229	< 5	< 0.2	2.68	18	110	< 0.5	< 2	0.08	< 0.5	12	35	265	7.37	10	< 1	0.20	< 10	0.85	990
NWG143	201	229	20	2.6	2.01	84	170	< 0.5	< 2	0.09	0.5	11	23	324	6.58	10	< 1	0.29	10	0.50	2080
NWG144	201	229	85	3.0	4.43	22	150	< 0.5	< 2	0.20	0.5	21	33	240	8.19	< 10	< 1	0.16	10	1.12	1095
NWG145	201	229	< 5	2.8	3.81	10	590	< 0.5	< 2	0.06	0.5	11	15	376	9.07	20	< 1	0.41	20	0.29	745
NWG146	201	229	10	3.2	2.23	42	250	< 0.5	2	0.14	2.0	21	20	636	8.37	10	1	0.35	10	0.54	2430
NWG147	201	229	55	1.6	2.70	20	220	< 0.5	< 2	0.09	1.0	26	23	548	10.05	20	< 1	0.38	10	0.63	3220
NWG148	201	229	5	< 0.2	4.77	22	110	< 0.5	< 2	0.20	0.5	16	34	129	7.02	< 10	1	0.16	10	0.85	1385
NWG149	201	229	5	0.4	2.60	< 2	100	< 0.5	< 2	0.07	< 0.5	6	22	136	6.10	10	< 1	0.18	< 10	0.54	500
NWG150	201	229	10	< 0.2	2.15	2	50	< 0.5	< 2	0.03	< 0.5	2	16	196	7.04	10	< 1	0.13	10	0.27	250
NWG151	201	229	35	< 0.2	1.28	22	100	< 0.5	< 2	< 0.01	< 0.5	1	2	74	8.07	10	< 1	0.15	< 10	0.05	210
NWG152	201	229	90	3.8	1.92	28	140	< 0.5	< 2	0.03	< 0.5	7	22	483	9.09	10	< 1	0.29	< 10	0.60	620
NWG153	201	229	30	0.6	2.35	14	450	< 0.5	< 2	0.27	3.5	18	17	155	5.26	10	2	0.17	20	0.68	4030
NWG154	201	229	65	1.2	0.48	18	150	< 0.5	< 2	0.17	3.5	10	2	168	3.55	< 10	1	0.16	< 10	0.15	3280
NWG155	201	229	20	1.4	0.44	12	130	< 0.5	< 2	1.02	1.5	8	4	43	1.89	10	< 1	0.10	< 10	0.25	1645
NWG156	201	229	10	1.6	1.41	32	140	< 0.5	< 2	0.48	6.0	19	23	127	3.55	10	< 1	0.13	< 10	0.77	1110
NWG157	201	229	10	0.6	1.58	18	110	< 0.5	< 2	0.43	2.0	19	25	248	4.20	20	< 1	0.24	< 10	0.86	955
NWG158	201	229	45	1.0	0.84	22	100	< 0.5	< 2	0.31	1.5	12	11	145	3.34	10	< 1	0.13	< 10	0.42	1465
NWG159	201	229	10	0.6	0.95	8	90	< 0.2	< 2	0.48	0.5	10	15	90	2.42	10	< 1	0.10	< 10	0.65	875
NWG160	201	229	30	1.8	2.03	16	290	< 0.5	< 2	0.70	2.0	16	19	155	3.34	20	< 1	0.21	10	0.81	2540
NWG161	201	229	10	0.6	3.07	8	190	< 0.5	< 2	0.26	1.0	17	25	103	4.08	20	< 1	0.17	10	0.99	1850
L6800 00+00W	201	229	< 5	< 0.2	3.92	10	170	< 0.5	< 2	0.41	< 0.5	22	37	88	5.03	20	< 1	0.30	< 10	1.55	2370
L6800 00+50W	201	229	< 5	< 0.2	4.46	12	110	< 0.5	< 2	0.12	< 0.5	25	31	102	4.53	20	< 1	0.13	< 10	1.07	1150
L6800 01+00W	201	229	< 5	< 0.2	3.55	10	270	< 0.5	< 2	0.40	0.5	22	40	106	4.90	20	< 1	0.24	< 10	1.42	3430
L6800 01+50W	201	229	< 5	2.2	3.52	4	210	< 0.5	< 2	0.44	2.0	19	46	323	5.60	20	< 1	0.40	< 10	1.69	1710
L6800 02+00W	201	229	< 5	< 0.2	3.53	< 2	140	< 0.5	< 2	0.20	0.5	19	46	113	5.17	20	< 1	0.27	< 10	1.33	2100
L6800 02+50W	201	229	10	0.8	3.63	18	120	< 0.5	< 2	0.12	0.5	19	34	107	4.61	10	< 1	0.14	< 10	0.93	1400
L6800 03+00W	201	229	15	1.6	2.70	62	80	< 0.5	6	0.11	1.5	32	25	169	4.91	10	< 1	0.13	< 10	0.77	1850
L6800 03+50W	201	229	15	1.8	2.69	38	130	< 0.5	4	0.17	7.5	30	28	234	5.36	20	< 1	0.11	10	0.92	2880
L6800 04+00W	201	229	< 5	0.6	4.23	24	100	< 0.5	< 2	0.31	1.0	40	52	298	5.88	20	< 1	0.15	10	1.62	1935
L6800 04+50W	201	229	< 5	3.4	3.23	68	210	< 0.5	52	0.19	6.0	17	22	693	9.42	30	< 1	0.37	10	0.75	3060
L6800 05+00W	201	229	< 5	2.4	2.15	58	110	< 0.5	8	0.03	3.0	23	15	344	5.99	10	< 1	0.27	10	0.48	3040
L6800 05+50W	201	229	50	2.2	2.65	38	310	< 0.5	4	0.26	3.5	20	32	257	6.35	20	< 1	0.22	10	1.00	1400
L6800 06+00W	201	229	5	0.4	2.11	36	300	< 0.5	6	0.30	1.0	8	24	179	5.57	20	< 1	0.24	10	0.71	490
L6800 06+50W	201	229	170	1.6	1.65	136	70	< 0.5	8	0.02	< 0.5	5	12	181	6.86	10	< 1	0.22	< 10	0.26	425
L6800 07+00W	201	229	5	< 0.2	2.71	80	90	< 0.5	2	0.04	< 0.5	12	32	236	8.23	20	1	0.18	< 10	0.67	660
L6800 07+50W	201	229	5	< 0.2	2.97	24	290	< 0.5	< 2	0.07	< 0.5	13	14	370	13.45	30	< 1	0.34	10	0.69	890
L6800 08+00W	201	229	< 5	0.4	3.38	28	200	< 0.5	< 2	0.16	0.5	26	60	265	6.90	20	< 1	0.17	10	1.28	1670
L6800 08+50W	201	229	< 5	4.4	6.13	18	120	< 0.5	< 2	0.16	0.5	20	47	211	8.69	< 10	< 1	0.15	10	1.33	1025
L6800 09+00W	201	229	10	2.0	1.94	42	310	< 0.5	6	0.21	1.5	16	22	377	6.44	20	< 1	0.26	10	0.59	2050

CERTIFICATION: Thai D Ma

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PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220770
P.O. Number :
Account :EO

CERTIFICATE OF ANALYSIS A9220770

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
NWG141	201	229	2	0.04	11	1440	170	6	7	41	0.03	< 10	< 10	68	< 10	510
NWG142	201	229	1	0.02	14	1590	90	2	7	32	0.03	< 10	< 10	74	< 10	368
NWG143	201	229	2	0.02	19	1410	576	4	6	36	0.02	< 10	< 10	51	< 10	730
NWG144	201	229	< 1	0.03	25	1630	100	4	21	21	0.50	< 10	< 10	135	< 10	560
NWG145	201	229	< 1	0.02	19	2250	92	2	14	176	< 0.01	< 10	< 10	50	< 10	468
NWG146	201	229	3	0.02	15	1720	380	4	9	32	0.02	< 10	< 10	56	< 10	1020
NWG147	201	229	6	0.02	16	2140	186	6	9	22	0.03	< 10	< 10	59	< 10	712
NWG148	201	229	3	0.02	17	1770	74	8	11	16	0.40	< 10	< 10	133	< 10	476
NWG149	201	229	6	0.01	8	1410	124	< 2	4	18	0.08	< 10	< 10	74	< 10	252
NWG150	201	229	3	< 0.01	3	1270	72	< 2	2	7	0.07	< 10	< 10	56	< 10	156
NWG151	201	229	1	< 0.01	1	1390	222	2	1	12	< 0.01	< 10	< 10	13	< 10	126
NWG152	201	229	< 1	0.02	10	1540	226	4	9	14	0.24	< 10	< 10	96	< 10	252
NWG153	201	229	2	0.01	14	1200	64	4	10	32	0.10	< 10	< 10	57	< 10	1090
NWG154	201	229	3	0.01	5	800	108	< 2	1	14	< 0.01	< 10	< 10	9	< 10	736
NWG155	201	229	< 1	0.01	6	1310	52	< 2	1	32	< 0.01	< 10	< 10	16	< 10	400
NWG156	201	229	< 1	0.02	19	1280	78	2	5	21	0.04	< 10	< 10	57	< 10	932
NWG157	201	229	1	0.03	15	1320	32	2	5	20	0.10	< 10	< 10	65	< 10	564
NWG158	201	229	1	0.02	9	1170	58	< 2	3	15	0.03	< 10	< 10	35	< 10	380
NWG159	201	229	< 1	0.02	9	1270	26	< 2	4	15	0.08	< 10	< 10	48	< 10	206
NWG160	201	229	1	0.01	14	1570	154	< 2	4	100	0.01	< 10	< 10	50	< 10	618
NWG161	201	229	< 1	0.01	15	1610	156	4	6	56	0.04	< 10	< 10	66	< 10	548
L6800 00+00W	201	229	< 1	0.01	22	2240	26	4	10	15	0.16	< 10	< 10	106	< 10	290
L6800 00+50W	201	229	< 1	0.01	28	1170	28	6	7	7	0.16	< 10	< 10	103	< 10	226
L6800 01+00W	201	229	1	0.01	20	1990	44	2	5	31	0.08	< 10	< 10	117	< 10	310
L6800 01+50W	201	229	< 1	0.01	19	1810	78	< 2	10	22	0.12	< 10	< 10	120	< 10	906
L6800 02+00W	201	229	1	0.01	18	1430	50	< 2	6	11	0.16	< 10	< 10	122	< 10	424
L6800 02+50W	201	229	< 1	0.01	20	1100	110	4	4	12	0.13	< 10	< 10	106	< 10	458
L6800 03+00W	201	229	4	0.01	24	1220	210	2	5	9	0.01	< 10	< 10	68	< 10	838
L6800 03+50W	201	229	1	0.01	29	1130	232	< 2	7	14	0.03	< 10	< 10	75	< 10	2050
L6800 04+00W	201	229	1	0.04	68	2530	98	6	7	32	0.17	< 10	< 10	123	< 10	1090
L6800 04+50W	201	229	< 1	0.01	13	1710	218	4	7	48	0.03	< 10	< 10	65	< 10	1610
L6800 05+00W	201	229	< 1	0.01	12	1240	236	4	6	21	0.01	< 10	< 10	39	< 10	1045
L6800 05+50W	201	229	< 1	0.02	31	1580	150	< 2	9	43	0.11	< 10	< 10	79	< 10	1320
L6800 06+00W	201	229	1	0.02	12	1180	120	< 2	8	39	0.03	< 10	< 10	60	< 10	738
L6800 06+50W	201	229	1	0.01	4	1130	368	4	8	12	< 0.01	< 10	< 10	41	< 10	382
L6800 07+00W	201	229	3	0.02	15	1590	154	8	11	20	0.02	< 10	< 10	84	< 10	318
L6800 07+50W	201	229	< 1	0.07	8	3000	78	2	22	60	0.07	< 10	< 10	198	< 10	648
L6800 08+00W	201	229	< 1	0.03	44	1660	96	4	11	31	0.20	< 10	< 10	130	< 10	582
L6800 08+50W	201	229	< 1	0.03	27	1800	72	2	26	18	0.79	< 10	< 10	193	< 10	400
L6800 09+00W	201	229	< 1	0.03	20	1540	286	2	8	52	0.03	< 10	< 10	53	< 10	810

CERTIFICATION: Hai D Ma

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

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To: TECK EXPLORATIONS LIMITED

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CERTIFICATE OF ANALYSIS A9220770

SAMPLE	PREP CODE		Au-AA ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
L6800 09+50W	201	229	10	0.4	1.82	18	300	0.5	2	0.14	1.5	20	23	930	7.51	20	< 1	0.22	10	0.57	1675
L6800 10+00W	201	229	< 5	< 0.2	2.31	20	270	< 0.5	< 2	0.03	< 0.5	6	61	591	10.45	20	< 1	0.31	20	0.78	370
L6800 10+50W	201	229	< 5	< 0.2	1.90	14	290	< 0.5	< 2	0.02	< 0.5	4	12	689	14.40	30	< 1	0.30	20	0.32	365
L6800 11+00W	201	229	< 5	0.2	1.91	20	370	0.5	4	0.06	1.5	17	9	434	6.14	20	< 1	0.32	20	0.39	2210
L6800 11+50W	201	229	10	2.4	2.21	24	150	< 0.5	6	0.06	< 0.5	11	20	335	7.21	20	< 1	0.30	10	0.55	1245
L6800 12+00W	201	229	30	1.4	2.12	24	170	< 0.5	4	0.11	0.5	11	18	289	6.71	20	< 1	0.29	10	0.49	1415
L6800 12+50W	201	229	55	2.0	3.33	18	200	< 0.5	6	0.08	2.0	16	25	420	7.99	20	< 1	0.22	10	0.69	1415
L6800 13+00W	201	229	210	3.8	3.10	22	260	< 0.5	2	0.09	3.0	16	24	479	7.67	20	< 1	0.34	10	0.76	3020
L6800 13+50W	201	229	65	12.0	2.52	18	120	< 0.5	10	0.10	< 0.5	9	26	290	5.95	20	< 1	0.18	10	0.65	1540
L6800 14+00W	201	229	105	12.2	2.36	42	200	< 0.5	< 2	0.21	14.5	22	24	644	7.01	20	1	0.27	20	0.73	8010
L9400E 09500N	201	229	< 5	< 0.2	3.58	16	40	< 0.5	< 2	0.12	< 0.5	10	40	61	7.72	20	< 1	0.05	< 10	0.82	860
L9400E 09550N	201	229	< 5	< 0.2	2.96	18	40	< 0.5	< 2	0.12	< 0.5	7	38	46	7.80	20	< 1	0.04	< 10	0.46	465
L9400E 09600N	201	229	15	< 0.2	1.99	12	30	< 0.5	< 2	0.20	< 0.5	6	40	55	5.58	10	< 1	0.04	< 10	0.49	255
L9400E 09650N	201	229	300	< 0.2	3.42	2	30	< 0.5	< 2	0.21	< 0.5	8	32	60	4.00	10	< 1	0.04	< 10	0.48	530
L9400E 09700N	201	229	5	1.2	1.90	< 2	20	< 0.5	< 2	0.13	< 0.5	2	17	21	1.59	10	< 1	0.02	< 10	0.18	110
L9400E 09750N	201	229	< 5	< 0.2	2.93	< 2	30	< 0.5	< 2	0.30	< 0.5	10	29	51	3.42	10	< 1	0.04	< 10	0.59	700
L9400E 09800N	201	229	< 5	1.4	4.01	4	30	< 0.5	< 2	0.17	< 0.5	8	34	77	3.63	10	< 1	0.03	< 10	0.54	285
L9400E 09850N	201	229	10	0.6	3.30	6	90	< 0.5	< 2	0.57	< 0.5	10	30	65	2.88	10	< 1	0.10	< 10	0.80	435
L9400E 09900N	201	229	< 5	0.6	3.37	18	50	< 0.5	< 2	0.33	< 0.5	8	25	48	3.19	10	1	0.04	< 10	0.48	375
L9400E 09950N	201	229	80	< 0.2	2.81	8	30	< 0.5	< 2	0.23	< 0.5	4	23	31	3.58	10	< 1	0.03	< 10	0.32	250
L9400E 10000N	201	229	15	2.6	2.38	10	50	< 0.5	< 2	0.18	< 0.5	4	21	29	4.73	10	< 1	0.03	< 10	0.31	265
L9500E 09500N	201	229	< 5	5.6	3.22	6	40	< 0.5	< 2	0.13	< 0.5	9	25	66	4.24	< 10	1	0.04	< 10	0.40	305
L9500E 09550N	201	229	10	4.6	3.11	2	60	< 0.5	< 2	0.23	< 0.5	24	29	82	3.44	< 10	< 1	0.04	< 10	0.70	545
L9500E 09600N	201	229	< 5	0.2	3.53	8	20	< 0.5	< 2	0.10	< 0.5	4	32	48	7.02	10	< 1	0.02	< 10	0.26	155
L9500E 09650N	201	229	60	1.8	3.76	8	30	< 0.5	< 2	0.14	< 0.5	6	27	53	4.76	10	1	0.02	< 10	0.40	420
L9500E 09700N	201	229	5	0.6	3.05	6	20	< 0.5	< 2	0.19	< 0.5	7	19	32	2.88	10	< 1	0.04	< 10	0.33	395
L9500E 09750N	201	229	10	0.2	1.72	8	20	< 0.5	< 2	0.13	< 0.5	2	18	24	3.10	10	< 1	0.02	< 10	0.18	205
L9500E 09800N	201	229	< 5	6.4	3.72	6	60	< 0.5	< 2	0.17	0.5	17	30	66	4.03	10	< 1	0.03	< 10	0.40	880
L9500E 09850N	201	229	< 5	0.4	1.39	18	160	< 0.5	< 2	0.53	< 0.5	13	22	53	2.51	10	< 1	0.13	< 10	0.73	1260
L9500E 09900N	201	229	10	1.8	1.33	24	150	< 0.5	< 2	0.58	0.5	13	20	51	2.57	10	< 1	0.15	< 10	0.72	1325
L9500E 09950N	201	229	20	2.6	1.70	34	280	< 0.5	< 2	0.67	1.5	18	23	64	3.44	10	< 1	0.22	< 10	0.90	3140
L9500E 10000N	201	229	20	1.0	1.62	20	160	< 0.5	< 2	0.59	0.5	15	23	49	2.64	10	< 1	0.17	< 10	0.77	1060
L9600E 09500N	201	229	375	2.8	4.11	10	60	< 0.5	< 2	0.27	0.5	9	26	69	3.12	10	< 1	0.06	< 10	0.56	430
L9600E 09550N	201	229	20	2.2	0.89	< 2	30	< 0.5	< 2	0.13	< 0.5	1	7	10	0.72	< 10	< 1	0.04	< 10	0.16	75
L9600E 09600N	201	229	40	4.2	2.97	4	70	< 0.5	< 2	0.32	< 0.5	9	27	56	4.38	10	< 1	0.06	< 10	0.60	310
L9600E 09650N	201	229	55	2.4	2.66	12	30	< 0.5	< 2	0.11	< 0.5	3	20	32	5.53	< 10	2	0.03	< 10	0.21	195
L9600E 09700N	201	229	25	0.6	1.96	18	160	< 0.5	< 2	0.52	< 0.5	15	28	44	3.07	10	1	0.15	< 10	0.93	1170
L9600E 09750N	201	229	15	1.0	1.61	12	220	< 0.5	< 2	0.66	0.5	15	23	61	2.90	10	< 1	0.22	< 10	0.90	1550
L9600E 09800N	201	229	15	1.6	1.88	40	190	< 0.5	< 2	0.61	1.0	21	29	75	3.19	10	< 1	0.21	< 10	0.98	1685
L9600E 09850N	201	229	5	1.2	1.75	32	200	< 0.5	< 2	0.60	1.0	21	25	84	3.17	10	< 1	0.19	< 10	0.92	1670

CERTIFICATION: Thai D Ma

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220770
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220770

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
L6800 09+50W	201	229	6	0.03	17	1760	214	4	7	44	0.04	< 10	< 10	53	< 10	578
L6800 10+00W	201	229	2	0.12	18	2280	100	4	9	71	0.01	< 10	< 10	59	< 10	270
L6800 10+50W	201	229	1	0.24	7	3330	166	4	6	132	0.08	< 10	< 10	46	< 10	320
L6800 11+00W	201	229	2	0.09	10	1540	140	< 2	4	48	< 0.01	< 10	< 10	28	< 10	472
L6800 11+50W	201	229	14	0.02	10	1830	266	4	5	24	0.04	< 10	< 10	56	< 10	392
L6800 12+00W	201	229	4	0.01	9	1600	216	2	5	26	0.04	< 10	< 10	52	< 10	548
L6800 12+50W	201	229	< 1	0.02	14	1630	182	2	12	22	0.31	< 10	< 10	101	< 10	800
L6800 13+00W	201	229	3	0.02	14	2060	162	2	10	34	0.22	< 10	< 10	88	< 10	1170
L6800 13+50W	201	229	6	0.01	12	1580	264	6	5	20	0.06	< 10	< 10	75	< 10	492
L6800 14+00W	201	229	3	0.01	16	2300	514	4	7	24	0.14	< 10	< 10	70	< 10	2400
L9400E 09500N	201	229	< 1	0.01	12	2080	54	4	4	13	0.11	< 10	< 10	133	< 10	326
L9400E 09550N	201	229	< 1	0.01	10	1230	42	2	4	16	0.30	< 10	< 10	188	< 10	138
L9400E 09600N	201	229	< 1	0.02	13	920	22	< 2	3	16	0.19	< 10	< 10	121	< 10	96
L9400E 09650N	201	229	< 1	0.02	11	820	18	< 2	4	9	0.13	< 10	< 10	83	< 10	104
L9400E 09700N	201	229	< 1	0.01	3	390	32	< 2	2	12	0.18	< 10	< 10	59	< 10	36
L9400E 09750N	201	229	< 1	0.02	12	2310	12	< 2	3	18	0.10	< 10	< 10	68	< 10	92
L9400E 09800N	201	229	< 1	0.01	14	1070	14	4	4	14	0.10	< 10	< 10	68	< 10	110
L9400E 09850N	201	229	< 1	0.05	17	880	12	4	7	14	0.16	< 10	< 10	73	< 10	154
L9400E 09900N	201	229	< 1	0.03	11	730	16	4	4	12	0.16	< 10	< 10	69	< 10	140
L9400E 09950N	201	229	< 1	0.02	7	510	8	2	3	12	0.13	< 10	< 10	82	< 10	72
L9400E 10000N	201	229	< 1	0.01	6	410	24	2	3	10	0.13	< 10	< 10	104	< 10	96
L9500E 09500N	201	229	3	0.01	12	660	86	4	3	8	0.19	< 10	< 10	76	< 10	172
L9500E 09550N	201	229	5	0.02	20	510	46	< 2	4	11	0.15	< 10	< 10	74	< 10	370
L9500E 09600N	201	229	1	0.01	6	720	32	4	4	5	0.17	< 10	< 10	129	< 10	98
L9500E 09650N	201	229	< 1	0.01	9	860	20	4	4	8	0.11	< 10	< 10	70	< 10	126
L9500E 09700N	201	229	1	0.01	5	1030	18	2	2	9	0.13	< 10	< 10	63	< 10	54
L9500E 09750N	201	229	9	0.01	4	550	20	< 2	2	14	0.16	< 10	< 10	96	< 10	48
L9500E 09800N	201	229	7	0.01	14	980	30	4	3	20	0.08	< 10	< 10	63	< 10	192
L9500E 09850N	201	229	< 1	0.03	16	1100	42	< 2	4	23	0.07	< 10	< 10	52	< 10	180
L9500E 09900N	201	229	< 1	0.03	15	1290	60	< 2	4	22	0.06	< 10	< 10	49	< 10	218
L9500E 09950N	201	229	< 1	0.03	21	1290	70	< 2	6	27	0.08	< 10	< 10	63	< 10	336
L9500E 10000N	201	229	< 1	0.03	18	1170	50	< 2	4	24	0.05	< 10	< 10	55	< 10	200
L9600E 09500N	201	229	< 1	0.01	12	1110	78	2	4	8	0.08	< 10	< 10	52	< 10	248
L9600E 09550N	201	229	3	0.01	3	210	22	< 2	1	7	0.20	< 10	< 10	49	< 10	30
L9600E 09600N	201	229	13	0.02	13	550	34	4	5	12	0.23	< 10	< 10	108	< 10	262
L9600E 09650N	201	229	10	0.01	6	360	24	4	3	8	0.33	< 10	< 10	166	< 10	80
L9600E 09700N	201	229	< 1	0.03	16	1170	44	2	5	22	0.11	< 10	< 10	74	< 10	160
L9600E 09750N	201	229	< 1	0.03	17	1370	52	2	5	30	0.10	< 10	< 10	61	< 10	234
L9600E 09800N	201	229	< 1	0.03	24	1230	96	2	5	24	0.06	< 10	< 10	66	< 10	376
L9600E 09850N	201	229	< 1	0.03	23	1230	106	2	5	23	0.06	< 10	< 10	63	< 10	322

CERTIFICATION: Hai D Ma

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220770
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220770

SAMPLE	PREP CODE		Au-AA ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
L9600E 09900N	201	229	40	0.4	0.99	2	100	< 0.5	< 2	0.69	1.0	11	16	74	1.77	< 10	< 1	0.10	< 10	0.51	505
L9600E 09950N	201	229	650	0.8	1.15	10	160	< 0.5	< 2	0.72	0.5	14	19	73	2.13	< 10	< 1	0.15	< 10	0.64	615
L9600E 10000N	201	229	10	0.4	0.95	8	140	< 0.5	< 2	0.71	< 0.5	11	16	43	2.01	10	< 1	0.19	< 10	0.69	580

CERTIFICATION: Hai D Ma

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220770
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220770

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
L9600E 09900N	201	229	< 1	0.05	14	1120	14	< 2	3	25	0.09	< 10	< 10	45	< 10	274
L9600E 09950N	201	229	< 1	0.05	17	1190	32	< 2	4	25	0.09	< 10	< 10	52	< 10	276
L9600E 10000N	201	229	< 1	0.03	11	1700	26	< 2	3	22	0.08	< 10	< 10	44	< 10	114

CERTIFICATION: Hart Bichler

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LTD.

350 - 272 VICTORIA ST.
KAMLOOPS, BC
V2C 1Z6

Project : DOROTHY/SIVA
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Page Number : 1-A
Total Pages : 1
Certificate Date: 14-JUL-92
Invoice No. : I9217380
P.O. Number :
Account : HPQ

CERTIFICATE OF ANALYSIS A9217380

SAMPLE	PREP CODE		Au-AA ppb	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
489680	205	274	< 5	0.2	0.88	2	170	< 0.5	< 2	1.04	3.5	11	184	162	2.73	< 10	< 1	0.22	< 10	0.37	180
489681	205	274	30	2.6	0.44	78	20	< 0.5	< 2	14.15	1.0	8	44	95	5.29	< 10	< 1	0.10	< 10	1.67	>10000
489682	205	274	20	6.8	0.22	36	80	< 0.5	< 2	1.40	0.5	7	117	15	5.49	< 10	< 1	0.09	< 10	0.63	>10000
489683	205	274	55	10.0	0.19	38	110	< 0.5	< 2	0.30	3.5	9	93	33	7.88	< 10	< 1	0.09	< 10	0.44	>10000
489684	205	274	160	102.0	0.28	144	110	0.5	< 2	0.39	15.5	8	123	78	3.64	< 10	< 1	0.17	< 10	0.12	>10000
489685	205	274	285	75.4	0.33	300	20	< 0.5	814	0.02	1.0	3	145	1065	10.65	< 10	< 1	0.05	< 10	0.05	235
489686	205	274	5	1.0	3.16	24	40	< 0.5	< 2	0.09	< 0.5	43	73	461	10.50	10	2	0.21	< 10	1.60	565
489687	205	274	60	13.2	0.65	68	60	< 0.5	< 2	0.20	19.0	14	132	140	5.13	< 10	< 1	0.35	< 10	0.20	>10000
489688	205	274	1300	>200	0.18	2510	10	< 0.5	< 2	0.14	76.5	16	168	1290	14.25	< 10	< 1	0.08	< 10	0.10	>10000
489689	205	274	1750	94.2	0.52	350	30	< 0.5	< 2	1.04	>100.0	13	141	1240	9.81	< 10	< 1	0.11	< 10	0.44	>10000
489690	205	274	5	3.6	2.98	14	10	< 0.5	< 2	0.12	< 0.5	35	118	1385	>15.00	10	1	0.26	< 10	1.03	1855

CERTIFICATION: Hart Bichler

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LTD.
350 - 272 VICTORIA ST.
KAMLOOPS, BC
V2C 1Z6

Project : DOROTHY/SIVA
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 14-JUL-92
Invoice No. : I9217380
P.O. Number :
Account :HPQ

CERTIFICATE OF ANALYSIS A9217380

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
489680	205	274	29	0.09	75	2070	4	2	2	14	0.13	< 10	< 10	147	< 10	150
489681	205	274	1	< 0.01	6	160	60	4	1	176	< 0.01	< 10	50	16	50	314
489682	205	274	3	< 0.01	8	140	102	4	4	17	< 0.01	< 10	100	17	30	366
489683	205	274	2	< 0.01	7	190	44	2	4	7	< 0.01	< 10	140	21	30	636
489684	205	274	2	< 0.01	13	300	308	< 2	3	16	< 0.01	< 10	30	9	20	2320
489685	205	274	14	< 0.01	4	320	36	4	1	1	< 0.01	< 10	< 10	9	< 10	422
489686	205	274	2	0.04	12	440	14	8	11	9	0.12	< 10	< 10	204	10	104
489687	205	274	2	< 0.01	14	200	212	< 2	3	4	< 0.01	< 10	80	18	30	3300
489688	205	274	4	< 0.01	32	160	3470	< 2	4	2	< 0.01	< 10	70	16	70	>10000
489689	205	274	3	< 0.01	46	180	840	< 2	8	14	< 0.01	< 10	130	26	130	>10000
489690	205	274	14	< 0.01	27	530	102	10	7	5	< 0.01	< 10	< 10	74	< 50	710

CERTIFICATION: Hart Bichler

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LTD.

350 - 272 VICTORIA ST.
KAMLOOPS, BC
V2C 1Z6

Project : DOROTHY/SIVA
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 24-JUL-92
Invoice No. : I9217661
P.O. Number :
Account : HPQ

CERTIFICATE OF ANALYSIS A9217661

SAMPLE	PREP CODE		Au oz/T FA+AA	Ag FA oz/T	Cu %	Mo %	Pb %	Zn %
489681	244	--	0.0015	-----	-----	-----	-----	-----
489682	244	--	0.0005	-----	-----	-----	-----	-----
489683	244	--	0.0020	-----	-----	-----	-----	-----
489684	244	--	0.0070	4.25	-----	-----	-----	0.26
489685	244	--	0.0135	2.35	0.11	-----	-----	-----
489687	244	--	0.0035	-----	-----	-----	-----	0.36
489688	244	--	0.0525	30.00	0.13	-----	0.42	1.53
489689	244	--	0.0625	3.00	0.13	-----	-----	7.34
489690	244	--	-----	-----	0.14	-----	-----	-----

CERTIFICATION: Hart Vink

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220772
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220772

SAMPLE	PREP CODE		Au-AA ppb	Ag ppm Aqua R	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
128521	205	274	5	0.4	0.32	< 2	20	< 0.5	< 2	0.15	1.5	2	109	49	1.14	< 10	< 1	0.06	< 10	0.19	70
128522	205	274	5	0.7	0.51	2	10	< 0.5	< 2	0.39	< 0.5	6	53	141	1.05	< 10	< 1	0.10	< 10	0.06	75
128523	205	274	400	10.5	0.23	46	20	< 0.5	32	0.04	1.0	2	164	80	3.16	< 10	< 1	0.07	< 10	0.02	50
128524	205	274	10	< 0.2	0.31	< 2	60	< 0.5	< 2	0.08	< 0.5	1	107	7	0.51	< 10	< 1	0.09	< 10	0.09	130
128525	205	274	5	< 0.2	0.23	4	50	< 0.5	< 2	0.09	< 0.5	6	141	32	0.36	< 10	< 1	0.18	< 10	0.03	45
128526	205	274	< 5	< 0.2	0.96	< 2	10	< 0.5	< 2	1.29	21.5	4	123	17	1.86	< 10	< 1	0.01	< 10	0.68	1325
128527	205	274	5	1.4	1.18	< 2	10	< 0.5	2	2.10	0.5	16	110	642	3.64	< 10	< 1	0.09	< 10	0.33	860
128528	205	274	< 5	< 0.2	1.49	< 2	30	< 0.5	< 2	0.87	1.5	11	35	14	2.29	< 10	< 1	0.10	10	1.25	740
128529	205	274	325	27.0	1.27	260	10	< 0.5	24	0.11	>100.0	66	182	883	>15.00	< 10	< 1	< 0.01	< 10	0.76	1505
128530	205	274	5	1.3	1.47	< 2	20	< 0.5	2	1.43	< 0.5	71	57	367	5.31	< 10	1	0.05	< 10	0.78	725
128531	205	274	5	2.0	1.59	6	20	< 0.5	< 2	1.15	0.5	74	83	336	5.31	< 10	< 1	0.04	< 10	1.05	635
128532	205	274	165	0.3	0.27	< 2	< 10	< 0.5	8	11.35	< 0.5	12	23	41	3.52	< 10	< 1	0.02	< 10	0.11	6430
128533	205	274	5	0.3	1.69	< 2	70	< 0.5	< 2	0.11	< 0.5	50	61	317	5.61	< 10	< 1	0.89	< 10	1.33	355
128534	205	274	45	20.0	0.27	344	20	< 0.5	44	0.38	>100.0	31	98	153	12.40	< 10	8	0.03	10	0.52	>10000
128535	205	274	10	1.3	0.55	30	60	< 0.5	2	>15.00	3.0	8	28	14	4.09	< 10	1	0.14	< 10	2.27	>10000
128536	205	274	15	9.8	1.98	86	20	< 0.5	16	1.03	27.5	44	51	191	7.42	< 10	3	0.33	< 10	1.12	>10000
128537	205	274	10	14.0	0.23	258	40	< 0.5	26	0.29	0.5	22	85	21	9.31	< 10	5	0.08	10	0.24	>10000
128538	205	274	20	12.8	0.58	24	10	< 0.5	60	10.50	< 0.5	16	47	16	5.72	< 10	7	0.04	< 10	0.93	>10000
128539	205	274	< 5	< 0.2	1.68	< 2	90	< 0.5	4	2.23	< 0.5	13	69	158	2.51	< 10	< 1	0.09	< 10	0.71	830
128540	205	274	15	15.0	0.26	50	200	< 0.5	8	0.13	27.0	14	117	115	1.82	< 10	< 1	0.14	< 10	0.06	>10000
128541	205	274	145	2.8	0.31	24	< 10	< 0.5	< 2	12.95	>100.0	27	56	255	6.32	< 10	< 1	< 0.01	< 10	0.33	>10000
128542	205	274	< 5	0.4	1.85	< 2	20	< 0.5	2	1.90	< 0.5	17	58	133	3.04	< 10	< 1	0.08	< 10	0.79	510
128543	205	274	< 5	1.0	0.41	< 2	< 10	< 0.5	2	0.99	7.0	6	140	104	0.82	< 10	< 1	< 0.01	< 10	0.15	355
128544	205	274	< 5	< 0.2	0.57	< 2	10	< 0.5	< 2	3.92	5.0	7	46	25	1.07	< 10	< 1	0.03	< 10	0.26	815
128545	205	274	< 5	0.7	1.34	2	20	< 0.5	4	1.41	< 0.5	45	27	326	4.70	10	1	0.08	< 10	0.74	500
128546	205	274	< 5	0.8	1.24	< 2	20	< 0.5	4	1.73	< 0.5	28	46	419	3.97	10	< 1	0.09	< 10	0.68	480
128547	205	274	< 5	0.7	1.04	< 2	20	< 0.5	4	1.48	< 0.5	5	100	180	2.39	< 10	< 1	0.06	< 10	0.45	460
128548	205	274	< 5	0.8	1.77	< 2	10	< 0.5	2	1.92	< 0.5	27	71	411	2.95	< 10	< 1	0.07	< 10	0.82	415
128549	205	274	< 5	0.5	1.21	< 2	10	< 0.5	2	1.41	< 0.5	35	34	195	3.64	< 10	< 1	0.04	< 10	0.73	580
128550	205	274	< 5	0.6	6.21	8	230	< 0.5	2	2.89	< 0.5	21	110	309	5.41	20	< 1	1.79	< 10	1.67	780
474451	205	274	55	17.4	0.21	108	60	< 0.5	32	0.10	< 0.5	12	168	11	5.25	< 10	2	0.06	< 10	0.05	>10000
474452	205	274	< 5	1.0	1.21	< 2	20	< 0.5	4	1.82	< 0.5	35	58	335	4.34	10	< 1	0.07	< 10	0.69	595
474453	205	274	10	0.6	2.25	2	30	< 0.5	2	2.52	< 0.5	22	42	208	2.94	< 10	< 1	0.11	< 10	1.01	520
544001	205	274	50	< 0.2	2.72	2	90	< 0.5	4	1.59	< 0.5	6	41	49	1.94	< 10	< 1	0.29	< 10	0.70	465
544002	205	274	< 5	0.3	1.84	< 2	70	< 0.5	< 2	0.42	< 0.5	37	107	396	4.22	< 10	< 1	0.95	< 10	1.63	385
544003	205	274	1080	8.7	0.17	4	< 10	< 0.5	110	7.29	>100.0	38	19	71	5.61	< 10	< 1	0.01	< 10	0.04	3640
544003 NO TAG	205	274	760	2.4	0.13	< 2	< 10	< 0.5	36	6.80	>100.0	22	4	47	3.14	< 10	< 1	0.03	< 10	0.04	3060
544004	205	274	10	3.0	2.01	< 2	40	< 0.5	4	2.79	2.0	48	51	803	3.94	< 10	< 1	0.13	< 10	0.44	385
544005	205	274	< 5	< 0.2	2.68	< 2	40	< 0.5	2	3.04	1.5	21	63	8	5.30	10	< 1	0.10	< 10	1.93	3740
544006	205	274	5	6.2	0.51	< 2	< 10	< 0.5	12	3.28	1.0	83	79	5300	5.91	< 10	< 1	< 0.01	< 10	0.14	485

CERTIFICATION: Ihai D Ma

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220772
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220772

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
128521	205	274	< 1	0.06	3	90	4	< 2	1	9	0.04	< 10	< 10	12	< 10	364
128522	205	274	1	0.10	7	450	4	< 2	< 1	26	< 0.01	< 10	< 10	3	< 10	94
128523	205	274	60	< 0.01	4	60	76	< 2	< 1	4	< 0.01	< 10	< 10	10	< 10	468
128524	205	274	< 1	0.05	3	30	< 2	< 2	< 1	8	< 0.01	< 10	< 10	5	< 10	56
128525	205	274	< 1	0.04	2	30	4	< 2	< 1	12	< 0.01	< 10	20	2	< 10	30
128526	205	274	< 1	0.02	9	250	2	< 2	6	16	0.11	< 10	< 10	31	< 10	1470
128527	205	274	< 1	0.07	2	2270	2	2	5	35	0.15	< 10	< 10	18	< 10	88
128528	205	274	< 1	0.08	9	1270	6	< 2	2	91	0.16	< 10	< 10	41	< 10	440
128529	205	274	< 1	< 0.01	17	430	672	< 2	2	2	0.01	< 10	10	42	< 50	>10000
128530	205	274	< 1	0.15	118	800	2	< 2	9	24	0.22	< 10	< 10	343	10	126
128531	205	274	< 1	0.10	101	720	56	< 2	7	17	0.27	< 10	< 10	400	< 10	166
128532	205	274	< 1	0.01	12	710	8	< 2	< 1	49	0.01	< 10	10	14	10	72
128533	205	274	< 1	0.08	13	70	< 2	< 2	12	11	0.10	< 10	< 10	109	< 10	92
128534	205	274	< 1	< 0.01	12	260	488	< 2	4	5	< 0.01	< 10	10	< 1	60	>10000
128535	205	274	< 1	< 0.01	7	110	58	< 2	1	187	< 0.01	< 10	< 10	5	20	598
128536	205	274	< 1	< 0.01	56	730	370	< 2	18	17	< 0.01	< 10	< 10	87	20	5250
128537	205	274	< 1	< 0.01	11	300	110	< 2	2	17	< 0.01	< 10	10	< 1	< 10	478
128538	205	274	< 1	< 0.01	10	160	146	< 2	3	177	< 0.01	< 10	20	3	40	368
128539	205	274	< 1	0.22	20	700	2	2	9	42	0.34	< 10	< 10	104	10	42
128540	205	274	3	< 0.01	10	230	178	< 2	4	7	< 0.01	< 10	< 10	6	< 10	2350
128541	205	274	< 1	< 0.01	5	400	198	< 2	1	88	< 0.01	< 10	< 10	8	80	>10000
128542	205	274	< 1	0.20	36	890	6	2	9	42	0.24	< 10	< 10	208	10	112
128543	205	274	< 1	< 0.01	8	160	8	< 2	1	16	0.02	< 10	< 10	15	< 10	1005
128544	205	274	< 1	0.01	11	530	8	2	2	27	0.12	< 10	< 10	20	< 10	1015
128545	205	274	< 1	0.11	68	580	12	< 2	9	16	0.46	< 10	< 10	296	10	76
128546	205	274	< 1	0.15	7	1390	4	2	12	10	0.33	< 10	< 10	103	10	50
128547	205	274	< 1	0.10	3	840	2	< 2	8	12	0.35	< 10	< 10	78	< 10	100
128548	205	274	< 1	0.18	45	930	4	2	9	36	0.22	< 10	< 10	104	< 10	56
128549	205	274	< 1	0.13	43	910	4	2	10	19	0.24	< 10	< 10	188	10	48
128550	205	274	< 1	0.38	20	760	140	4	21	66	0.30	< 10	< 10	177	20	276
474451	205	274	1	< 0.01	11	160	196	< 2	2	46	< 0.01	< 10	10	3	< 10	128
474452	205	274	< 1	0.15	20	1000	2	2	11	18	0.41	< 10	< 10	131	10	54
474453	205	274	< 1	0.28	51	660	< 2	4	11	118	0.29	< 10	< 10	101	10	76
544001	205	274	< 1	0.27	2	10	4	4	< 1	53	< 0.01	< 10	< 10	14	< 10	98
544002	205	274	< 1	0.12	27	780	< 2	< 2	11	22	0.16	< 10	< 10	139	< 10	70
544003	205	274	< 1	0.01	3	440	66	< 2	< 1	11	< 0.01	< 10	< 10	4	290	>10000
544003 NO TAG	205	274	< 1	0.01	3	400	22	< 2	< 1	16	< 0.01	< 10	< 10	2	120	>10000
544004	205	274	< 1	0.18	23	4540	8	2	7	62	0.16	< 10	< 10	38	10	498
544005	205	274	< 1	< 0.01	23	530	8	< 2	11	18	0.01	< 10	< 10	124	20	456
544006	205	274	< 1	0.01	30	460	8	< 2	1	45	0.07	< 10	< 10	16	20	198

CERTIFICATION: Hart Bichler

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220772
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220772

SAMPLE	PREP CODE		Au-AA ppb	Ag ppm Aqua R	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
544007	205	274	20	29.0	0.27	72	190	< 0.5	36	1.55	>100.0	14	241	136	5.95	< 10	6	0.09	< 10	0.19	>10000
544008	205	274	325	196.0	0.07	230	160	< 0.5	2	0.01	< 0.5	1	325	160	1.79	< 10	< 1	< 0.01	< 10	< 0.01	185
544009	205	274	< 5	5.1	1.59	32	110	< 0.5	4	0.07	4.0	16	122	247	3.58	< 10	< 1	0.57	10	0.24	2990
544010	205	274	< 5	4.0	1.05	< 2	150	< 0.5	2	0.70	< 0.5	44	205	649	1.42	< 10	< 1	0.08	< 10	0.67	390
544011	205	274	95	12.0	1.26	24	120	< 0.5	8	1.03	1.0	16	174	1175	5.53	< 10	< 1	0.41	< 10	0.40	9160
544012	205	274	40	38.0	1.01	44	80	< 0.5	24	0.19	3.0	13	161	1020	7.35	< 10	2	0.35	< 10	0.26	420
544015	205	274	2600	23.0	1.71	2450	1020	< 0.5	16	0.31	< 0.5	8	129	151	7.57	10	< 1	0.38	< 10	0.59	1310
544016	205	274	10	0.8	1.94	6	10	< 0.5	10	2.82	1.0	< 1	182	20	1.79	10	< 1	< 0.01	< 10	0.01	320
544051	205	274	10	3.1	0.38	10	170	< 0.5	2	0.04	< 0.5	2	176	455	2.02	< 10	< 1	0.17	< 10	0.03	75
544052	205	274	580	1.0	0.42	< 2	< 10	< 0.5	18	6.45	18.0	5	29	23	1.85	< 10	< 1	0.06	< 10	0.09	2480
544053	205	274	< 5	0.5	1.96	2	30	< 0.5	< 2	2.07	< 0.5	40	64	180	4.93	10	1	0.12	< 10	0.92	480
544054	205	274	< 5	1.0	1.40	< 2	10	< 0.5	< 2	1.94	0.5	44	36	285	4.09	< 10	1	0.06	< 10	0.80	585
544055	205	274	< 5	14.0	2.07	12	20	< 0.5	6	2.58	2.0	116	91	1155	14.50	10	< 1	0.08	< 10	0.93	2370
544056	205	274	< 5	0.7	1.37	< 2	20	< 0.5	4	1.38	< 0.5	40	91	226	5.59	< 10	< 1	0.07	< 10	0.87	580
544057	205	274	< 5	2.6	0.50	28	40	< 0.5	14	0.36	13.0	14	193	19	2.66	< 10	1	0.20	10	0.16	>10000
544058	205	274	10	0.4	1.69	< 2	30	< 0.5	2	2.07	< 0.5	25	75	138	2.87	< 10	< 1	0.10	< 10	0.92	605
544059	205	274	< 5	1.8	2.28	< 2	110	< 0.5	2	0.27	1.0	54	74	961	7.90	10	< 1	1.09	< 10	1.44	870
544060	205	274	< 5	5.4	0.74	32	10	< 0.5	12	0.06	93.0	20	275	581	4.81	< 10	< 1	< 0.01	< 10	0.40	985
544061	205	274	1120	2.9	0.49	< 2	120	< 0.5	340	13.80	63.5	21	91	543	12.65	< 10	< 1	0.02	< 10	0.13	9080
544062	205	274	< 5	0.8	1.77	< 2	20	< 0.5	2	2.28	< 0.5	38	88	329	4.38	10	< 1	0.11	< 10	0.97	840
544063	205	274	< 5	1.6	2.33	< 2	40	< 0.5	4	2.04	1.5	65	81	433	6.98	10	1	0.16	< 10	1.12	855
544064	205	274	5	1.2	1.54	< 2	40	< 0.5	4	2.01	< 0.5	48	109	471	4.32	10	< 1	0.10	< 10	0.84	760
544065	205	274	< 5	1.1	2.15	< 2	50	< 0.5	4	2.07	< 0.5	59	72	572	5.38	10	< 1	0.24	< 10	0.88	465
544066	205	274	75	52.0	0.28	644	20	< 0.5	8	0.12	70.5	10	204	154	2.67	< 10	1	0.12	< 10	0.09	>10000
544067	205	274	10	11.0	0.84	42	60	< 0.5	2	0.07	5.0	8	207	99	1.98	< 10	< 1	0.19	< 10	0.27	2640
544068	205	274	25	8.0	0.47	54	670	< 0.5	12	0.02	6.0	9	169	105	4.21	< 10	< 1	0.24	< 10	0.02	>10000
544069	205	274	75	10.0	0.70	8	90	< 0.5	10	0.02	< 0.5	3	57	21	2.66	< 10	< 1	0.51	< 10	0.06	95
544070	205	274	55	33.0	0.95	< 2	110	< 0.5	12	0.73	0.5	9	50	4330	3.59	< 10	< 1	0.61	10	0.16	750
544071	205	274	< 5	7.2	2.38	< 2	10	< 0.5	4	2.95	4.5	12	68	1080	3.29	10	< 1	0.01	< 10	1.05	1555
544072	205	274	10	66.0	2.04	< 2	40	< 0.5	12	1.24	3.0	16	65	>10000	3.72	10	< 1	0.06	< 10	1.29	955
544073	205	274	25	18.0	0.90	20	50	< 0.5	14	7.42	92.0	24	31	452	8.51	< 10	< 1	0.01	< 10	0.88	4060
544074	205	274	325	83.0	0.51	48	20	< 0.5	108	0.12	80.0	39	187	3650	14.00	< 10	< 1	0.09	< 10	0.19	1175
544075	205	274	440	29.0	1.38	126	20	< 0.5	36	1.32	37.0	11	154	1635	8.28	10	< 1	0.28	< 10	0.63	2640
544076	205	274	10	3.1	1.64	< 2	60	< 0.5	8	0.32	0.5	11	120	105	7.54	10	< 1	0.48	< 10	0.90	705
544105	205	274	< 5	2.8	2.54	< 2	40	< 0.5	8	1.20	15.5	39	124	1635	6.20	10	< 1	0.52	< 10	0.69	335
544106	205	274	< 5	0.3	2.40	< 2	180	< 0.5	2	0.79	< 0.5	21	126	152	4.20	10	< 1	1.00	< 10	0.94	505
544107	205	274	10	5.1	0.15	30	30	< 0.5	< 2	0.14	0.5	3	274	18	0.88	< 10	< 1	0.06	< 10	0.01	660
544108	205	274	< 5	0.2	1.79	< 2	310	< 0.5	4	2.07	< 0.5	24	68	263	3.85	20	< 1	0.18	< 10	0.94	465
544109	205	274	< 5	< 0.2	1.68	< 2	260	< 0.5	< 2	1.95	< 0.5	24	57	307	3.74	10	< 1	0.17	< 10	0.99	425
544110	205	274	< 5	2.4	0.40	54	30	< 0.5	30	0.14	< 0.5	14	166	13	5.62	< 10	2	0.18	< 10	0.06	>10000

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CERTIFICATE OF ANALYSIS A9220772

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
544007	205	274	< 1	< 0.01	12	230	4790	< 2	2	47	< 0.01	< 10	10	< 1	70	>10000
544008	205	274	1	< 0.01	4	20	9300	8	< 1	4	< 0.01	< 10	< 10	2	< 10	326
544009	205	274	< 1	0.01	13	570	256	< 2	6	13	< 0.01	< 10	< 10	25	10	1085
544010	205	274	< 1	0.10	22	90	36	2	1	92	0.04	< 10	< 10	29	< 10	46
544011	205	274	12	0.01	13	450	106	< 2	3	74	< 0.01	< 10	< 10	26	20	322
544012	205	274	50	0.03	11	530	370	< 2	2	27	< 0.01	< 10	< 10	33	30	662
544015	205	274	8	< 0.01	7	530	3760	14	5	40	< 0.01	< 10	< 10	59	30	506
544016	205	274	< 1	0.01	2	40	18	2	2	100	0.19	< 10	< 10	27	< 10	60
544051	205	274	2	0.07	3	20	20	< 2	< 1	16	< 0.01	< 10	< 10	4	< 10	36
544052	205	274	< 1	0.03	7	390	16	< 2	1	36	0.03	< 10	< 10	8	20	3340
544053	205	274	< 1	0.19	91	660	10	4	12	41	0.35	< 10	< 10	490	30	68
544054	205	274	< 1	0.17	65	700	4	4	11	19	0.31	< 10	< 10	285	20	158
544055	205	274	< 1	< 0.01	18	1120	158	< 2	6	20	0.04	< 10	10	58	90	354
544056	205	274	< 1	0.11	61	670	8	< 2	8	12	0.26	< 10	< 10	246	30	70
544057	205	274	1	< 0.01	16	320	84	< 2	6	17	< 0.01	10	< 10	12	< 10	1395
544058	205	274	< 1	0.29	53	1330	6	4	9	70	0.17	< 10	< 10	91	10	64
544059	205	274	9	0.06	26	230	6	< 2	20	5	0.31	< 10	< 10	172	30	162
544060	205	274	< 1	< 0.01	7	160	20	< 2	2	1	< 0.01	< 10	< 10	24	30	>10000
544061	205	274	< 1	< 0.01	13	100	20	< 2	3	50	0.01	< 10	< 10	12	180	9950
544062	205	274	< 1	0.21	21	950	6	2	16	24	0.37	< 10	< 10	228	20	94
544063	205	274	< 1	0.18	108	680	18	< 2	12	31	0.36	< 10	< 10	662	40	422
544064	205	274	< 1	0.20	21	1290	2	2	15	15	0.30	< 10	< 10	173	30	74
544065	205	274	< 1	0.16	12	1240	6	2	13	37	0.44	< 10	< 10	134	40	62
544066	205	274	< 1	< 0.01	12	250	324	< 2	1	2	< 0.01	< 10	< 10	4	30	>10000
544067	205	274	< 1	< 0.01	12	290	1175	< 2	3	2	< 0.01	< 10	< 10	20	< 10	1020
544068	205	274	4	< 0.01	7	230	64	< 2	2	37	< 0.01	< 10	< 10	6	20	702
544069	205	274	< 1	0.01	3	310	20	< 2	< 1	2	< 0.01	< 10	< 10	4	10	20
544070	205	274	< 1	0.02	8	2240	42	2	1	15	< 0.01	< 10	< 10	12	20	96
544071	205	274	< 1	0.04	18	1150	12	2	3	184	0.19	< 10	< 10	40	30	916
544072	205	274	3	0.09	21	1110	22	< 2	7	136	0.21	< 10	< 10	54	60	474
544073	205	274	< 1	0.01	10	160	48	< 2	3	104	0.01	< 10	< 10	21	110	>10000
544074	205	274	< 1	< 0.01	28	140	184	< 2	2	3	< 0.01	< 10	30	24	100	>10000
544075	205	274	3	< 0.01	33	700	950	< 2	2	57	< 0.01	< 10	10	69	80	6810
544076	205	274	8	0.03	10	720	60	< 2	6	15	0.06	< 10	< 10	73	40	278
544105	205	274	< 1	0.19	20	430	12	< 2	8	54	0.16	< 10	< 10	77	40	1835
544106	205	274	< 1	0.19	15	460	4	4	25	17	0.30	< 10	< 10	216	20	142
544107	205	274	< 1	< 0.01	8	30	38	< 2	< 1	3	< 0.01	< 10	< 10	2	< 10	108
544108	205	274	< 1	0.23	21	980	6	< 2	13	53	0.44	< 10	< 10	154	30	36
544109	205	274	< 1	0.22	28	1060	< 2	2	12	34	0.38	< 10	< 10	153	20	48
544110	205	274	< 1	0.01	12	240	40	< 2	3	13	< 0.01	10	10	11	30	246

CERTIFICATION: Thai D Ma

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220772
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220772

SAMPLE	PREP CODE		Au-AA ppb	Ag ppm Aqua R	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
544111	205	274	< 5	10.5	0.34	28	30	< 0.5	64	0.51	11.0	24	48	7	9.69	< 10	6	0.14	10	0.16	>10000
544112	205	274	< 5	0.5	0.09	< 2	< 10	< 0.5	2	< 0.01	< 0.5	1	141	86	1.76	< 10	< 1	0.01	< 10	0.01	185
544117	205	274	< 5	0.3	1.91	4	260	< 0.5	2	1.18	< 0.5	14	41	68	3.45	10	< 1	0.43	< 10	1.19	1180
544120	205	274	< 5	0.2	1.49	< 2	60	< 0.5	2	0.15	< 0.5	8	108	55	2.15	< 10	< 1	0.18	< 10	0.56	365
544121	205	274	< 5	< 0.2	1.33	2	100	< 0.5	2	1.47	1.5	5	39	9	1.77	10	< 1	0.28	10	0.51	1125
544122	205	274	< 5	1.4	1.25	2	60	< 0.5	4	0.07	< 0.5	3	35	121	2.86	< 10	< 1	0.62	10	0.13	130
544123	205	274	5	0.9	2.31	4	70	< 0.5	6	0.42	2.0	14	59	85	4.17	10	< 1	0.33	10	1.22	1860
544124	205	274	< 5	< 0.2	0.30	4	30	< 0.5	< 2	0.05	< 0.5	< 1	147	4	0.34	< 10	< 1	0.19	< 10	0.01	70
544125	205	274	< 5	< 0.2	1.79	< 2	40	< 0.5	2	1.18	< 0.5	14	88	36	3.06	10	< 1	0.11	< 10	1.36	595
544126	205	274	50	1.0	0.86	< 2	40	< 0.5	2	< 0.01	< 0.5	6	122	15	2.41	< 10	< 1	0.54	20	0.04	15
544127	205	274	30	3.9	0.75	< 2	100	< 0.5	6	1.51	4.5	8	49	210	3.14	< 10	< 1	0.56	< 10	0.37	5720
544128	205	274	5	0.7	0.87	2	170	< 0.5	6	0.29	2.0	7	58	58	3.00	< 10	< 1	0.59	< 10	0.13	7740
544129	205	274	< 5	< 0.2	1.10	< 2	110	< 0.5	2	3.03	< 0.5	8	44	12	2.15	< 10	< 1	0.47	< 10	0.57	715
544130	205	274	30	12.0	0.40	< 2	10	< 0.5	4	0.01	2.5	264	165	20	>15.00	< 10	< 1	0.27	< 10	0.03	40
544131	205	274	15	1.8	0.69	< 2	40	< 0.5	4	0.15	1.0	3	56	125	2.47	< 10	< 1	0.51	< 10	0.06	530
544132	205	274	< 5	< 0.2	2.31	< 2	40	< 0.5	2	1.33	< 0.5	12	94	3	3.61	10	< 1	0.15	< 10	2.05	785
544133	205	274	< 5	1.2	2.30	< 2	120	< 0.5	6	0.51	3.5	12	105	169	4.55	10	< 1	0.83	< 10	1.32	1195
544134	205	274	155	4.8	0.90	< 2	150	< 0.5	6	0.36	>100.0	4	146	132	3.31	< 10	1	0.51	< 10	0.19	2670
544135	205	274	5	5.1	1.13	< 2	10	< 0.5	4	1.45	1.0	26	404	1125	3.02	< 10	< 1	< 0.01	< 10	0.09	1695
544136	205	274	10	4.6	1.74	< 2	60	< 0.5	8	1.42	90.5	23	208	680	5.23	< 10	< 1	0.14	< 10	0.62	985
544137	205	274	165	30.0	1.10	448	10	< 0.5	16	3.62	69.0	82	105	1500	>15.00	< 10	< 1	0.11	< 10	0.29	2320
544138	205	274	270	33.0	0.71	60	30	< 0.5	56	0.35	2.5	4	166	1665	2.67	< 10	< 1	0.44	< 10	0.06	2110
544139	205	274	5	1.9	0.75	< 2	80	< 0.5	16	0.10	< 0.5	8	248	53	7.18	< 10	< 1	0.46	< 10	0.25	145
544140	205	274	< 5	2.5	2.40	< 2	70	< 0.5	12	0.25	79.0	22	158	154	5.28	< 10	< 1	0.59	< 10	0.88	1710
544141	205	274	< 5	0.2	0.54	< 2	80	< 0.5	< 2	0.01	< 0.5	1	199	11	0.94	< 10	< 1	0.42	< 10	0.03	55
544142	205	274	125	9.3	1.19	6	10	< 0.5	46	0.05	1.0	20	192	1210	>15.00	10	< 1	0.15	< 10	0.80	385
544143	205	274	< 5	4.8	1.35	6	50	< 0.5	8	0.12	28.5	25	213	1420	6.37	10	< 1	0.45	10	0.46	375
544144	205	274	< 5	0.3	0.82	< 2	50	< 0.5	2	0.11	0.5	5	232	52	1.65	< 10	< 1	0.34	< 10	0.35	195
544145	205	274	< 5	0.5	3.57	< 2	140	< 0.5	< 2	3.74	0.5	19	39	173	5.27	10	< 1	0.38	< 10	2.20	780
544146	205	274	15	1.6	1.40	< 2	90	< 0.5	2	0.04	< 0.5	2	171	176	3.18	< 10	< 1	0.84	10	0.10	55
544147	205	274	10	1.2	0.62	22	80	< 0.5	2	0.11	0.5	4	94	128	2.16	< 10	< 1	0.49	10	0.03	955
544148	205	274	< 5	< 0.2	1.49	< 2	60	< 0.5	2	1.20	0.5	14	58	30	3.92	10	< 1	0.10	20	1.23	955
544149	205	274	< 5	3.2	3.07	40	60	< 0.5	26	0.44	55.0	29	57	48	11.40	10	1	0.70	10	1.29	>10000
544150	205	274	< 5	0.3	3.59	2	270	< 0.5	< 2	4.16	< 0.5	19	64	139	3.08	< 10	< 1	0.26	< 10	1.32	910

CERTIFICATION: Hai D Ma

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 11-SEP-92
Invoice No. : I9220772
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220772

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
544111	205	274	6	< 0.01	22	260	370	< 2	6	43	< 0.01	20	30	< 1	70	1850
544112	205	274	28	< 0.01	4	40	2	< 2	< 1	< 1	< 0.01	< 10	< 10	6	< 10	4
544117	205	274	< 1	0.07	6	950	14	< 2	8	50	0.06	< 10	< 10	88	20	108
544120	205	274	< 1	0.03	10	570	8	< 2	5	18	0.02	< 10	< 10	47	< 10	50
544121	205	274	< 1	0.10	4	650	4	2	2	46	< 0.01	< 10	< 10	21	10	170
544122	205	274	< 1	0.01	2	580	20	< 2	1	10	< 0.01	< 10	< 10	7	10	348
544123	205	274	< 1	0.08	11	1300	18	< 2	5	32	0.03	< 10	< 10	111	20	680
544124	205	274	< 1	0.11	2	20	4	< 2	1	8	0.01	< 10	< 10	2	< 10	4
544125	205	274	< 1	0.12	19	770	< 2	2	8	32	0.23	< 10	< 10	96	20	84
544126	205	274	< 1	0.01	2	30	20	< 2	< 1	1	< 0.01	< 10	< 10	3	< 10	30
544127	205	274	< 1	0.03	4	650	78	< 2	1	31	< 0.01	< 10	< 10	7	20	1020
544128	205	274	< 1	0.04	3	760	60	< 2	1	18	< 0.01	< 10	< 10	4	10	382
544129	205	274	< 1	0.06	4	810	8	2	3	220	< 0.01	< 10	< 10	25	10	54
544130	205	274	84	< 0.01	7	< 10	244	< 2	1	3	< 0.01	< 10	10	6	< 50	398
544131	205	274	< 1	0.02	1	170	42	< 2	< 1	3	< 0.01	< 10	< 10	4	10	110
544132	205	274	< 1	0.05	31	2390	8	< 2	2	115	0.23	< 10	< 10	58	20	100
544133	205	274	< 1	0.11	17	830	24	< 2	8	32	0.19	< 10	< 10	103	30	784
544134	205	274	< 1	0.01	4	380	354	< 2	< 1	12	< 0.01	< 10	< 10	4	50	>10000
544135	205	274	13	< 0.01	23	280	6	< 2	1	16	0.06	< 10	< 10	39	< 10	324
544136	205	274	9	0.07	24	760	46	< 2	4	35	0.17	< 10	< 10	90	60	>10000
544137	205	274	< 1	< 0.01	33	120	3310	< 2	2	75	< 0.01	< 10	< 10	25	100	>10000
544138	205	274	2	< 0.01	4	470	1355	< 2	1	10	< 0.01	< 10	< 10	5	10	504
544139	205	274	< 1	0.03	9	520	38	< 2	6	8	0.04	< 10	< 10	74	20	110
544140	205	274	< 1	0.01	16	770	14	< 2	9	4	< 0.01	< 10	< 10	81	50	>10000
544141	205	274	1	0.02	3	30	14	< 2	< 1	7	< 0.01	< 10	< 10	4	< 10	84
544142	205	274	< 1	0.01	13	160	26	< 2	2	3	0.01	< 10	< 10	35	50	344
544143	205	274	2	0.01	18	580	12	< 2	3	5	0.02	< 10	< 10	48	30	5240
544144	205	274	< 1	0.04	6	50	4	< 2	1	8	0.01	< 10	< 10	26	< 10	150
544145	205	274	< 1	0.42	22	510	10	2	28	29	0.46	< 10	< 10	350	40	136
544146	205	274	< 1	0.02	4	320	30	< 2	1	3	< 0.01	< 10	< 10	9	< 10	92
544147	205	274	2	0.01	2	540	48	< 2	1	9	< 0.01	< 10	< 10	6	< 10	146
544148	205	274	< 1	0.20	16	1560	14	< 2	6	101	0.16	< 10	< 10	93	20	302
544149	205	274	< 1	< 0.01	53	410	150	< 2	26	13	< 0.01	< 10	10	127	100	>10000
544150	205	274	< 1	0.39	40	430	14	4	14	129	0.30	< 10	< 10	118	20	134

CERTIFICATION: Thai D Ma

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Page Number : 1-A
Total Pages : 1
Certificate Date: 09-SEP-92
Invoice No. : I9220773
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220773

SAMPLE	PREP CODE		Au oz/T	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm
544013	208	274	0.014	7.4	0.14	12	< 10	< 0.5	94	10.20	>100.0	34	43	88	10.75	< 10	2	< 0.01	< 10	0.03	5440
544014	208	274	< 0.001	4.2	0.93	< 2	10	< 0.5	26	2.46	>100.0	88	60	1355	14.35	< 10	2	0.01	< 10	0.47	2670

CERTIFICATION: Hai D Ma

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To: TECK EXPLORATIONS LIMITED

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V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 09-SEP-92
Invoice No. : I9220773
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220773

SAMPLE	PREP CODE		Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
544013	208	274	< 1	< 0.01	10	280	38	< 2	1	23	< 0.01	< 10	< 10	12	260	>10000
544014	208	274	1	< 0.01	8	360	46	< 2	3	33	0.01	< 10	< 10	24	120	>10000

CERTIFICATION: Hai D'Ma

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
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PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Page N er :1
Total Pages :1
Certificate Date: 11-SEP-92
Invoice No. : I9220984
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220984

SAMPLE	PREP CODE		Zn %	Cd %
544013	244	--	7.02	0.033
544014	244	--	17.00	0.088

CERTIFICATION: [signature]

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
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PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 21-SEP-92
Invoice No. : I9221437
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9221437

SAMPLE	PREP CODE		Cu %	Zn %	Cd %
128529	244	--	-----	6.80	0.036
128534	244	--	-----	4.16	0.023
128541	244	--	-----	2.59	0.015
544003	244	--	-----	7.42	0.036
544003 NO TAG	244	--	-----	4.32	0.021
544007	244	--	-----	2.19	0.020
544060	244	--	-----	1.79	-----
544066	244	--	-----	1.44	-----
544072	244	--	1.28	-----	-----
544073	244	--	-----	1.89	-----
544074	244	--	-----	1.77	-----
544134	244	--	-----	2.29	0.013
544136	244	--	-----	1.63	-----
544137	244	--	-----	1.57	-----
544140	244	--	-----	1.39	-----
544149	244	--	-----	1.33	-----

CERTIFICATION: *[signature]*

APPENDIX 4

ASSAY CERTIFICATES; WHOLE ROCK SAMPLES

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Page Number : 1-A
Total Pages : 1
Certificate Date: 15-SEP-92
Invoice No. : I9220771
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9220771

SAMPLE	PREP CODE		Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %	Ba ppm
474454	208	274	15.94	0.16	< 0.01	2.37	3.96	0.52	0.02	2.42	0.11	71.90	0.25	2.84	100.50	300
544077	208	274	15.61	1.93	< 0.01	3.13	2.30	0.94	0.12	3.99	0.18	67.85	0.41	3.62	100.10	1100
544113	208	274	17.35	5.50	< 0.01	6.84	2.22	3.93	0.20	4.00	0.36	50.17	0.95	7.72	99.26	1420
544114	208	274	18.36	2.16	< 0.01	8.36	4.13	1.81	0.30	0.33	0.14	58.42	0.96	5.36	100.35	800
544115	208	274	18.85	0.82	< 0.01	7.85	3.76	1.85	0.16	0.37	0.09	61.07	0.96	3.59	99.39	1070
544116	208	274	17.14	4.79	< 0.01	6.45	1.21	2.48	0.23	3.97	0.21	57.73	0.62	4.65	99.49	550
544118	208	274	21.80	1.57	0.02	9.34	2.52	2.08	0.19	1.35	0.12	54.74	1.31	4.01	99.05	1120
544119	208	274	18.84	1.91	0.02	10.32	0.55	2.16	0.25	1.14	0.12	61.84	1.02	0.81	98.97	430

CERTIFICATION: Hai D Ma

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 15-SEP-92
Invoice No. : I9220771
P.O. Number :
Account :EO

CERTIFICATE OF ANALYSIS A9220771

SAMPLE	PREP CODE		Nb ppm	Rb ppm	Sr ppm	Y ppm	Zr ppm	Co ppm	Cu ppm	Mo ppm	Ni ppm	Pb ppm	Zn ppm			
474454	208	274	< 10	99	50	< 10	80	< 1	19	2	3	70	86			
544077	208	274	10	54	420	10	150	6	8	< 1	5	10	158			
544113	208	274	< 10	54	630	50	110	20	28	< 1	36	12	284			
544114	208	274	< 10	76	60	20	90	16	30	< 1	20	26	528			
544115	208	274	< 10	82	60	20	110	17	13	< 1	17	6	104			
544116	208	274	< 10	44	480	50	60	19	72	1	10	34	126			
544118	208	274	10	77	170	80	140	11	43	1	5	8	100			
544119	208	274	< 10	33	230	100	110	20	64	1	24	< 2	32			

CERTIFICATION: Thai D Ma

APPENDIX 5

ASSAY CERTIFICATES; Tl, Ga & Ge ROCK ANALYSIS

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: TECK EXPLORATIONS LIMITED

600 - 200 BURRARD ST.
VANCOUVER, BC
V6C 3L9

Project : 1725-DOROTHY
Comments: ATTN: ANDY BETMANIS CC: TOR BRULAND

Certificate Date: 21-DEC-92
Invoice No. : I9224803
P.O. Number :
Account : EO

CERTIFICATE OF ANALYSIS A9224803

SAMPLE	PREP CODE		Ga ppm	Tl ppm	Ge ppm							
544013	208	--	10	< 1.0	< 50							
544014	208	--	< 10	< 1.0	< 50							
128529	208	--	< 10	< 1.0	< 50							
544003	208	--	< 10	< 1.0	< 50							
544003 NO TAG	208	--	< 10	< 1.0	< 50							

CERTIFICATION: Hart Bichler

APPENDIX 6

THIN SECTIONS DESCRIPTION

VP

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph.D. Geologist
CRAIG LEITCH, Ph.D. Geologist
JEFF HARRIS, Ph.D. Geologist
KEN E. NORTHCOTE, Ph.D. Geologist

P.O. BOX 39
8080 GLOVER ROAD,
FORT LANGLEY, B.C.
V0X 1J0
PHONE (604) 888-1323
FAX. (604) 888-3642

Report for: Tor Bruland,
Teck Exploration Ltd.,
600 - 200 Burrard St.,
Vancouver, B.C.
V6C 3L9

Job 67

September 17th, 1992

SAMPLES:

4 rock samples were submitted for preparation and microscopic examination.

Samples are numbered 128544, , 54013, 54014 and 544145. All were prepared as polished thin sections.

SUMMARY:

The rocks of the suite fall into a distinct group :
skarns.

b). Skarns:

Samples 128544 and 544145 are crudely banded rocks in which the major constituents are actinolite and epidote. Epidote predominates in the first, and actinolite in the second. Diopside and Ti minerals (sphene and ilmenite) are accessories. These rocks have the mineralogy of greenstones (meta-basic igneous rocks or derived pyroclastics?). They contain traces of pyrrhotite, sphalerite and chalcopyrite.

Samples 54013 and 54014 are mineralogically dissimilar, but alike in being significantly mineralized with marmatitic sphalerite and pyrrhotite. The first sample is composed predominantly of garnet, carbonate and actinolite, and has the features of a typical skarn; sulfides form irregular impregnations, cement clusters of garnet grains, and intimately replace fibrous actinolite. The other sample consists predominantly of carbonate and quartz; sulfides form irregular pockets in a zone characterized by abundant accessory chlorite. Elsewhere in the slide strings of feldspar and various calc silicates delineate a delicate laminar structure. This rock may be a skarnified metasediment, or possibly has exhalative affinities.

Individual petrographic descriptions are attached, together with a set of illustrative photomicrographs.

PHOTOMICROGRAPHS

All photos are of typical fields, at a scale of 1cm = 170 microns. Illumination is by cross-polarized transmitted light, except were otherwise stated.

SAMPLE 128544

Neg. 265-16: Skarn. Area at lower right is actinolite (grey-green prismatic) and carbonate (pastel pink/green). Bulk of area shown consists of epidote (yellow, brown grey) and zoisite (blue). Note zoisite apparently altering to epidote at bottom left. Carbonate (right) shows apparent replacement of the calc silicates. Small pink grains at lower right are sphene.

Neg. 265-17: Plane-polarized transmitted light. Shows strings of tiny euhedra of sphene (brown, high relief; bottom left to top right) in granular aggregate of predominant actinolite (greenish). Colourless grains are epidote and/or carbonate.

SAMPLE 54013

Neg. 265-21: Plane-polarized light. Mineralized skarn, showing mode of occurrence of marmatitic sphalerite (dark red-brown, sub-opaque), as pockety segregations and intimate impregnations of fibrous actinolite (green; left), and as a cement (or replacement of the carbonate matrix) to garnet (yellowish, equant grains; right). The white phase forming a matrix to the garnet (bottom right) is carbonate.

Neg. 265-23: Reflected light. Shows sulfide/silicate relationships. In this case the sulfides form a matrix incorporating more or less abundant silicate inclusions. Light grey is sphalerite; buff colour is pyrrhotite. Brownish grey (equant grains) is garnet. Slightly darker grey (often as fine-grained wisps) is actinolite.

SAMPLE 54014

Neg. 265-25: Typical field in the sulfide-rich portion of the slide. Various greys (sometimes elongate/prismatic) are quartz. Pastel-coloured pockets (centre) are calcite. Dark blue-black (felted/fibrous/radiate) is chlorite. Black (opaque) at bottom left is sulfides.

Neg. 265-24: Reflected light. Battleship grey (left) is sphalerite. Buff-coloured is pyrrhotite. Whiter areas within pyrrhotite (right, bottom right) are pyrite. Note mutually well-segregated occurrence of the two major sulfides (except for micron-sized exsolved inclusions of pyrrhotite and minor chalcopyrite in the sphalerite). Silicates (low reflectivity; brownish greys) are quartz (prismatic forms; higher relief), carbonate (striated) and chlorite (bottom left).

SAMPLE 54014

Neg. 266-0: Granoblastic fabric in laminated portion, showing trains of calc silicates (diopside: yellow-orange; zoisite: blue) and feldspars (K-spar: greys, sometimes with twinning; sericitized plagioclase: speckled buff colours) in matrix of carbonate (pastels) and accessory quartz (greys).

SAMPLE 544145

Neg. 266-1: Granoblastic aggregate of sub-oriented prismatic actinolite (yellow tones) with segregation of zoisite (blues). Trains of semi-coalescent grains of sphene (greyish brown: bottom left to upper right) have cores of ilmenite (black, opaque: e.g. left centre).

Neg. 266-2: Segregation of diopside (strong colours; higher relief: right) in matrix of actinolite (upper left).

Neg. 266-3: Reflected light. Shows trains of ilmenite (grey) in granular actinolite matrix (greenish). Rims of sphene (darker grey) visible on some ilmenite grains. Tiny yellow flecks (lower centre; left centre) are chalcopyrite.

Neg. 266-4: Shows alteration of actinolite to chlorite (grey, striated; centre) marginal to limonite-stained fracture. Fresh actinolite seen at top left. Blue is zoisite, locally modified to epidote (yellow).

SAMPLE 54013 MINERALIZED GARNET-RICH SKARN

Estimated mode

Carbonate	24
Quartz	5
Actinolite	15
Diopside	1
Garnet	40
Pyrrhotite	5
Sphalerite	10
Pyrite	trace

The feldspar-free composition and patchy, speckled/poikilitic texture apparent in the off-cut of this sample clearly distinguishes it as a variant of the skarnic lithotype.

Thin section examination indicates that the predominant constituents are brown (probably andradite-grossularite) garnet and carbonate. The latter shows effervescence with dilute acid, and is apparently (at least in major part) of calcitic composition.

The textural relationships are distinctive, the garnet occurring as individual euhedra, 0.05 - 0 .5mm in size, throughout a matrix of calcite or the other constituents. In part the garnet grains form loosely coalescent masses and, in part, occur as discrete individuals scattered poikilitically through coarse, sparry carbonate. The garnet is fresh, unzoned and free of optical anisotropy.

The principal silicate accessories are actinolitic amphibole, as fibrous/prismatic-textured segregations (commonly showing partial pseudomorphic alteration to carbonate) and quartz. Occasional equant granules of diopside are also seen.

The sectioned portion includes diffuse, reticulate, dark-coloured zones and patches which represent concentrations of red-brown (Fe-rich) sphalerite and lesser pyrrhotite.

The sphalerite occurs as intimate, fine-grained impregnations of actinolite, and as a matrix/cementing phase to areas of garnet granules. Sphalerite/silicate intergrowths range in scale from $<$0.01mm to 1mm or more, and look predominantly co-genetic.

The pyrrhotite shows similar relationships, though the strongest association is with garnet rather than actinolite. For the most part the pyrrhotite appears well segregated from the sphalerite, though some areas of more intimate intergrowth of the two sulfides (and silicates) are seen on the thin section scale.

SAMPLE 54014 **LAMINATED SKARN/EXHALITE**

Estimated mode

Quartz	48
K-feldspar	4
Sericite	4
Diopside	2
Epidote	4
Actinolite	1
Chlorite	9
Sphene	trace
Carbonate	21
Sphalerite	5
Pyrrhotite	2
Pyrite	trace
Chalcopyrite	trace

This sample shows a banded to finely laminated structure.

Approximately one half of the sectioned portion (the dark grey area of the off-cut) consists of an intergrowth of quartz, carbonate and chlorite, with a few thin, sub-parallel streaks of sulfides.

The quartz in this zone occurs as a mosaic-textured matrix, of grain size 0.4 - 0.4mm, with local coarser streaks. The carbonate forms intergrown pockets, locally segregated in crudely banded fashion. Some of the coarser carbonate-rich lenses are host to small euhedral crystals of quartz.

The chlorite is a distinctive, minutely felted/fibrous variety, occurring as irregular pockets and elongate segregations throughout the quartz-carbonate aggregate - sometimes, but not exclusively, associated with the sulfides.

The latter consist of Fe-rich sphalerite and lesser pyrrhotite. The two minerals are mainly well-segregated (as areas 0.2 - 2.0mm in size), but a proportion of fine-grained pyrrhotite (ranging down to micron-sized, exsolution type specks) occurs within the sphalerite. A minor component of secondary-type pyrite is developed in the pyrrhotite clumps, and rare traces of chalcopyrite are seen as minute specks and threads marginal to a few of them.

The other half of the slide differs in containing no chlorite or sulfides. It consists predominantly of a granoblastic mosaic of quartz and calcite, of grain size 0.1 - 0.5mm, with intercalated laminae and lenses of coarser, segregated quartz or carbonate.

It is distinctive on the macroscopic scale (see off-cut) for the presence of thin laminar concentrations of K-feldspar (yellow stained) and plagioclase (white etched). Thin section examination shows that it also contains accessory epidote, diopside, actinolite, and a component now almost totally replaced by felted sericite. The latter may represent original plagioclase or, possibly, andalusite.

Sample 54014 cont.

The k-feldspar is, by contrast, totally fresh.

The accessories tend to concentrate as parallel strings of anhedral grains.

The origin of this rock is somewhat uncertain. In part it has the texture and mineralogy of a metamorphically recrystallized (skarnified?) sediment - perhaps an impure, calcareous/arkosic siltstone. The quartz-carbonate chlorite-sulfide portion,however, could have originated as an intercalation of chemical sediment (chert or exhalite).

SAMPLE 128544 BANDED EPIDOTE-RICH SKARN

Estimated mode

Amphibole	20
Epidote) Zoisite)	62
Diopside	9
Carbonate	7
Sphene	1
Quartz	1
Pyrrhotite	trace
Chalcopyrite	trace
Sphalerite	trace

This is a fine-grained, crudely banded, greenish, feldspar-free rock. Thin section examination shows that it consists predominantly of a granular aggregate of epidote, with accessory amphibole, diopside and minor carbonate. It is texturally and compositionally consistent with a skarn.

The central band in the sectioned portion is made up largely of epidote, as a varigranular, partly rather coarse-grained, anhedral aggregate, of grain size 1 - 5mm. Much of it shows the anomalous, deep blue polarization colours characteristic of the variety zoisite. Discrete grains showing normal polarization colours occur sporadically intergrown, and the possible zoisite locally shows patches and networks of normal polarization which appear to represent a superimposed, cleavage-controlled modification.

The compositional zones flanking the central band consist of equigranular, sub-prismatic, pale green amphibole (probably actinolite) with individual grains and patchy/lenticular segregations of colourless pyroxene (diopside). Pyroxene is also seen as poikilitically included granules within the epidote grains.

Carbonate occurs sporadically as an interstitial phase to the aggregates of actinolite or epidote, and as a partial, pseudomorphic alteration of actinolite.

Quartz is a minor accessory, as scattered anhedra, intergranular to, or poikilitically enclosed within, the calc silicates.

Strings of tiny euhedral sphene crystals, concordant to the crude compositional banding, are developed within the aggregate of calc silicates.

Pyrrhotite, sphalerite and traces of chalcopyrite occur as sporadic interstitial pockets and cleavage-controlled impregnations, particularly in actinolite-rich areas.

SAMPLE 544145 **ACTINOLITE SKARN**

Estimated mode

Actinolite	73
Zoisite	12
Diopside	3
Chlorite	3
Sphene	3
Ilmenite	5
Chalcopyrite	trace
Pyrrhotite	trace
Limonite	1

This sample is another variant of the skarnic lithotype.

It shows a crude foliation, somewhat similar to that of Sample 128544. It also resembles that sample in terms of mineralogy, though the mineral proportions are different - actinolite being strongly dominant over epidote, and carbonate apparently absent. Sphene is a prominent accessory, as in the aforementioned sample, but, in the present case, occurs closely associated with ilmenite.

The rock consists mainly of a compact, equigranular, non-oriented aggregate of subhedral prismatic grains of fresh actinolite, 0.1 - 1.0mm in size.

This matrix includes an accessory epidote-type mineral, as sporadic grains and concordant lenticular segregations. This largely shows the dark blue, anomalous anisotropism of zoisite - occasionally with alteration-like networks and patches of normal anisotropism.

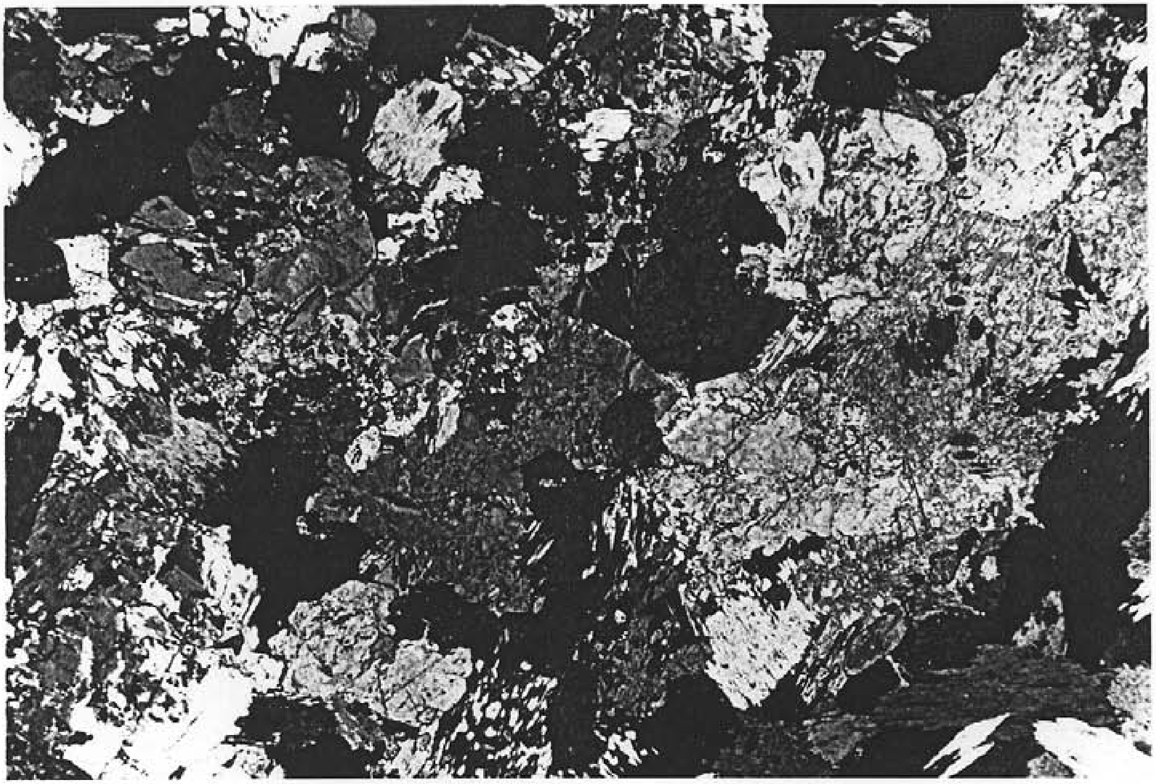
Other, less abundant, accessories are diopside (as scattered clusters of equant grains), ilmenite and sphene.

The ilmenite occurs as grains 20 - 200 microns in size, intergranular to the actinolite aggregate. It commonly coalesces as small patches and semi-continuous strings which defines a weak, wispy foliation.

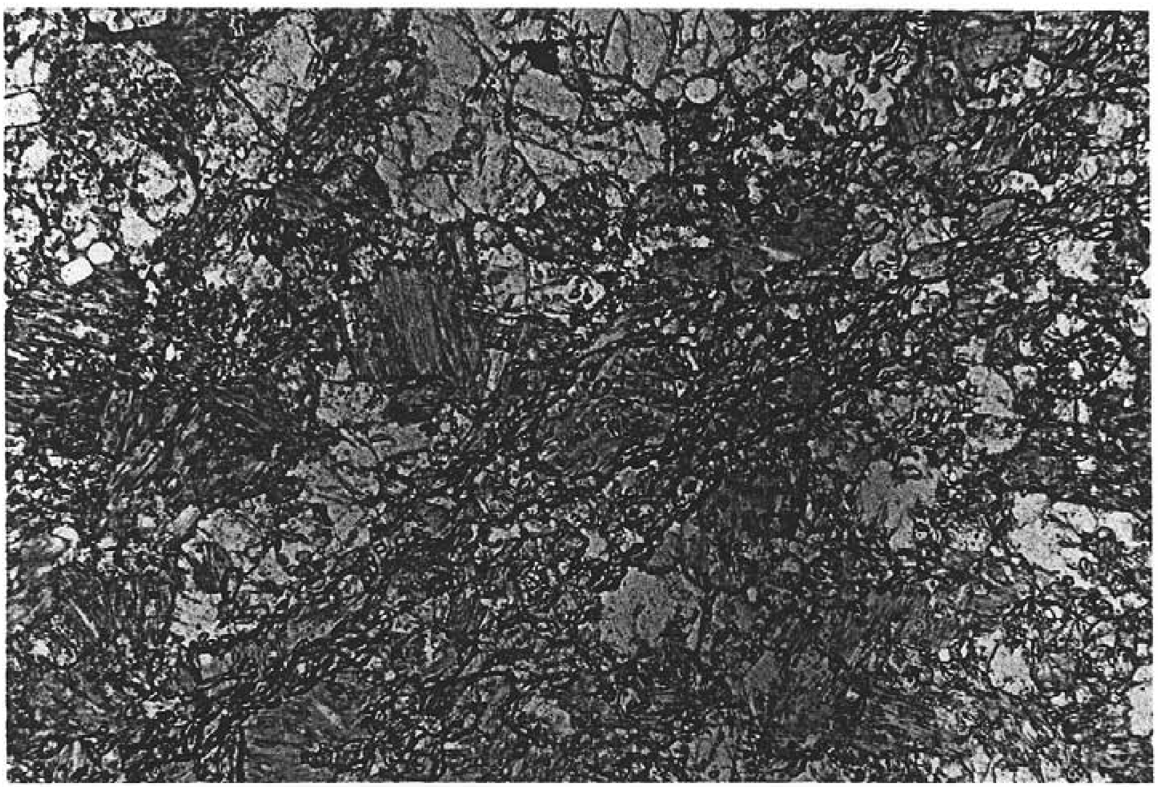
The sphene occurs in like manner, as small granular clumps - sometimes independent of the ilmenite, but often clearly in rimming (secondary?) relationship to the latter.

Rare traces of pyrrhotite and chalcopyrite, as individual specks, 10 - 100 microns in size, occur in similar intergranular mode. Sphalerite is not seen.

The sectioned area includes a limonite-stained hairline microfracture, adjacent to which the actinolite, in a zone 2 - 3mm in thickness, is strongly altered to chlorite.



SAMPLE 128544 (Neg. 265-16)



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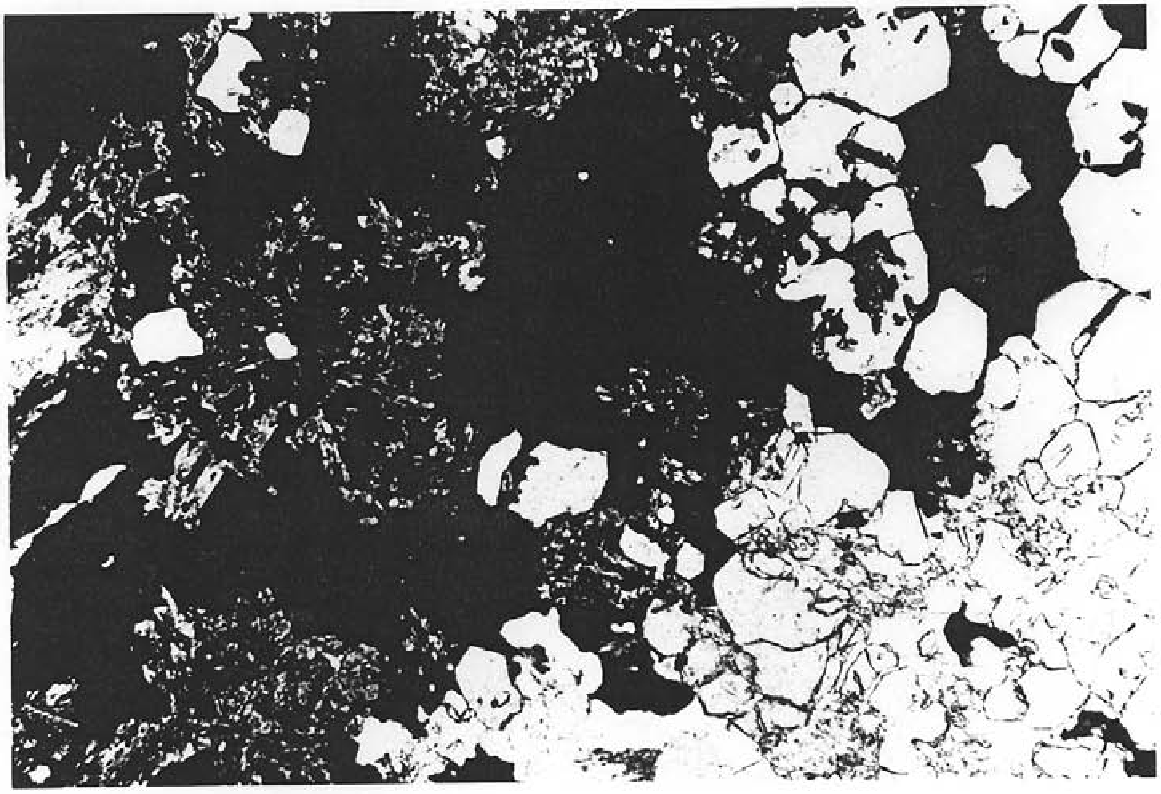
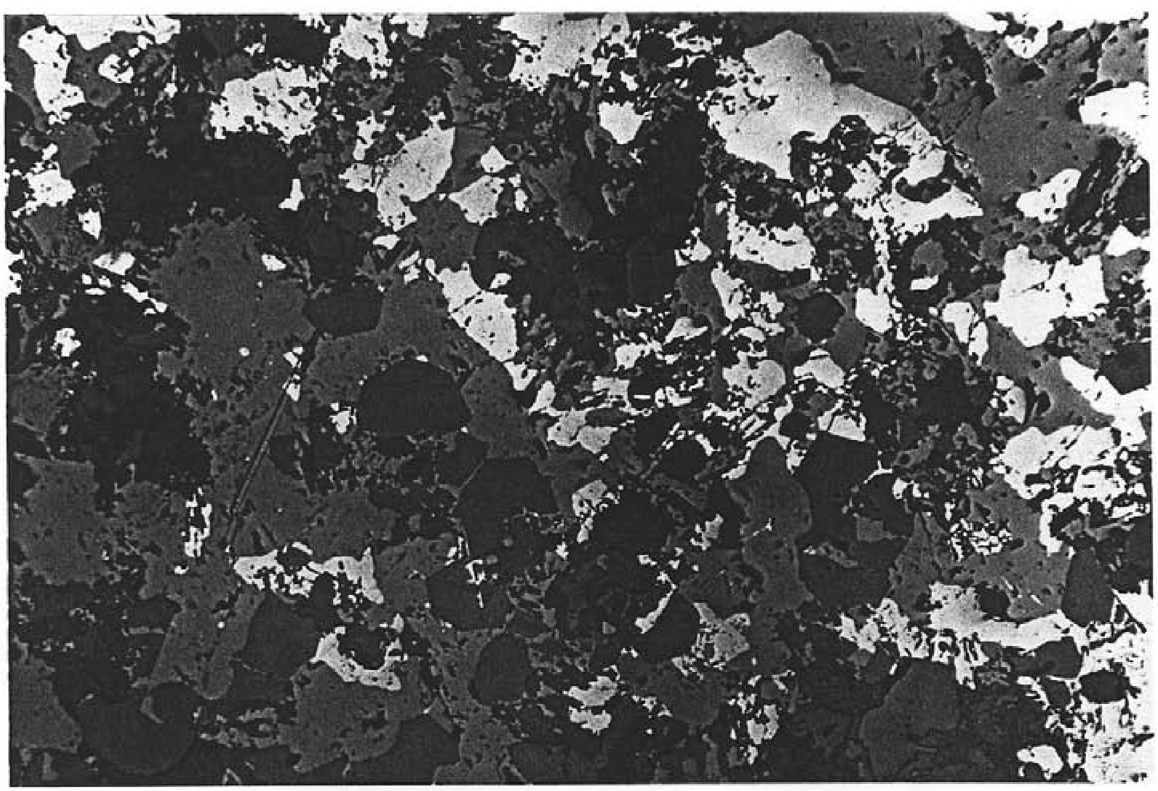
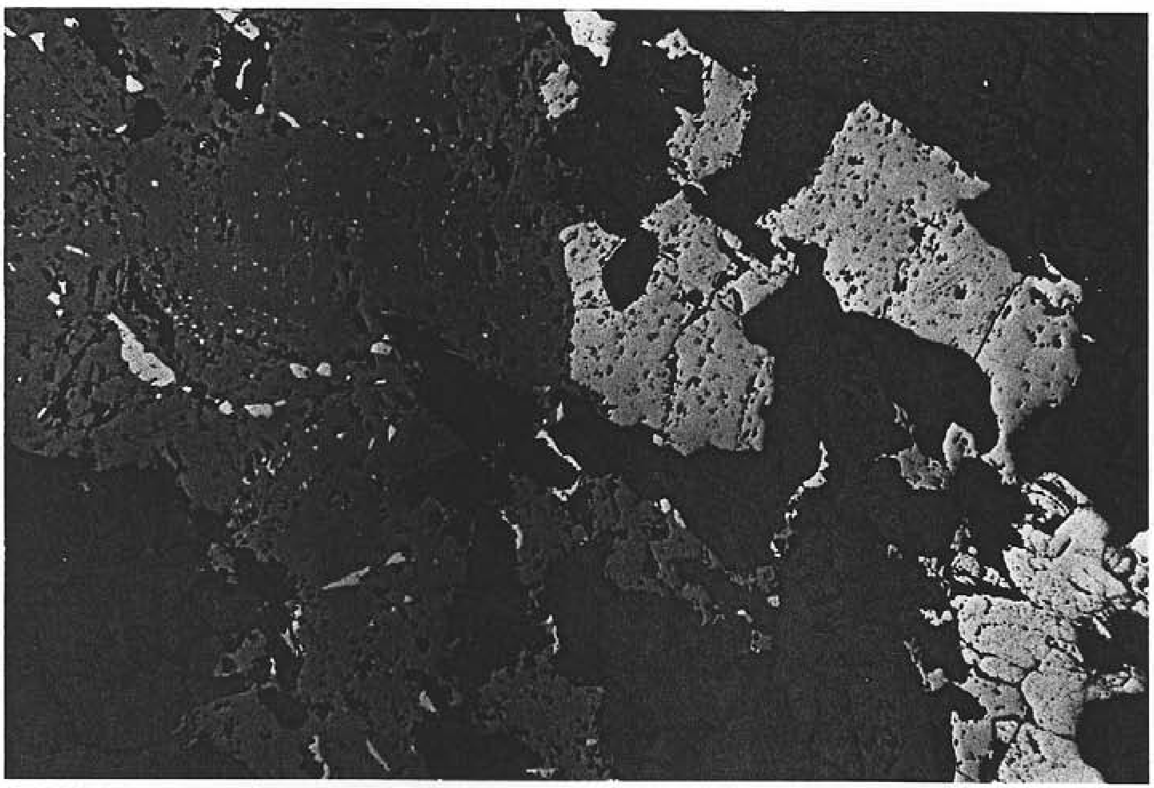


SAMPLE 54013 (Neg. 265-21)



SAMPLE 54013 (Neg. 265-23)

SAMPLE 54014 (Neg. 265-25)



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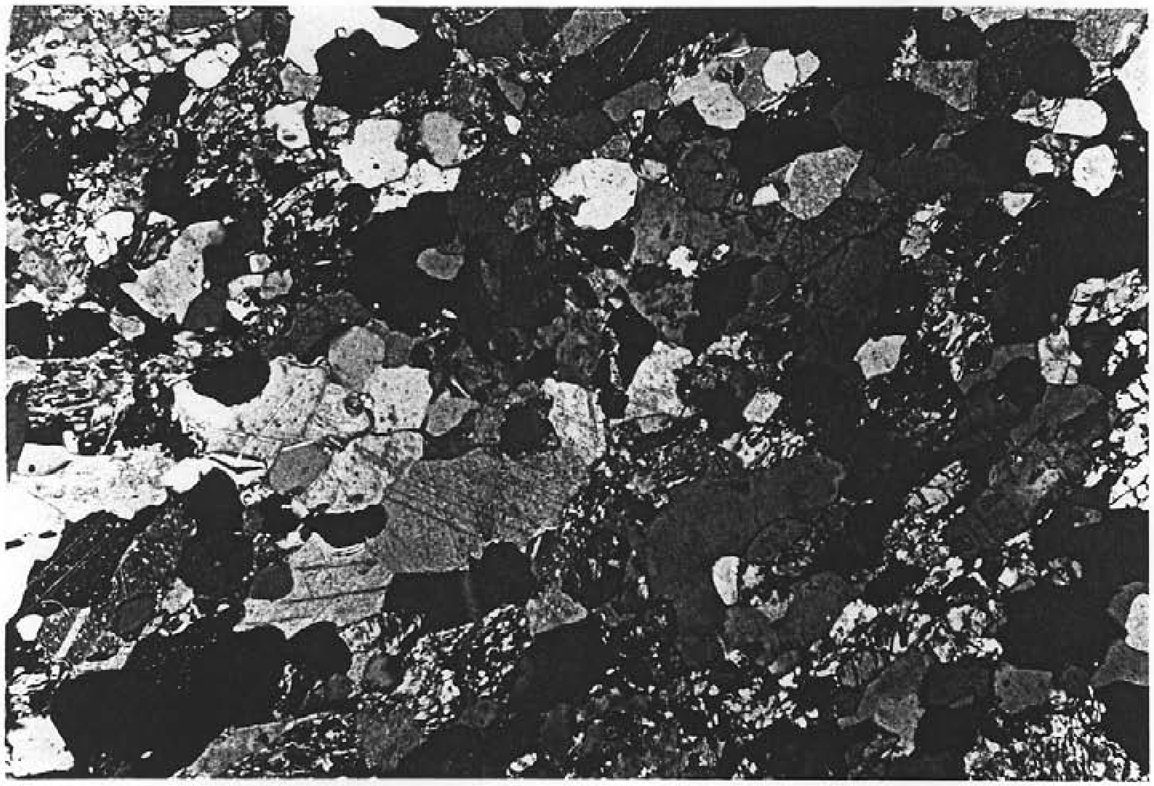
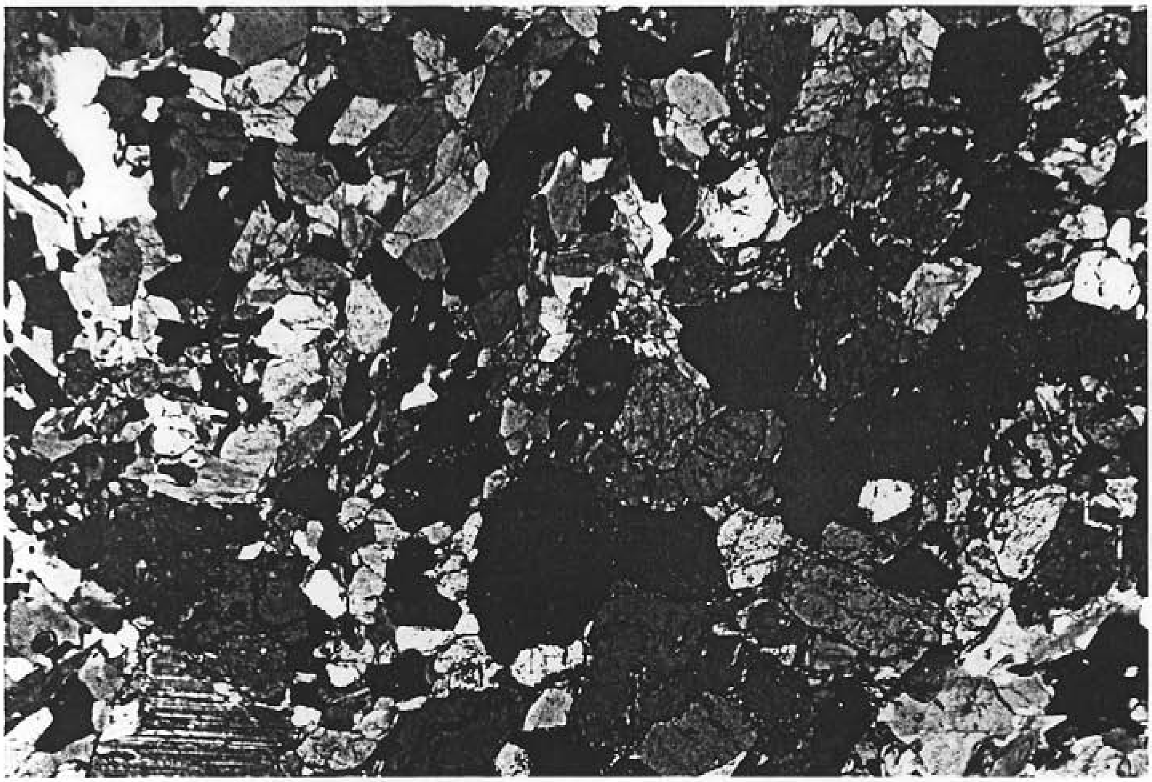


SAMPLE 54014 (Neg. 266-0)

SAMPLE 544145 (Neg. 266-1)



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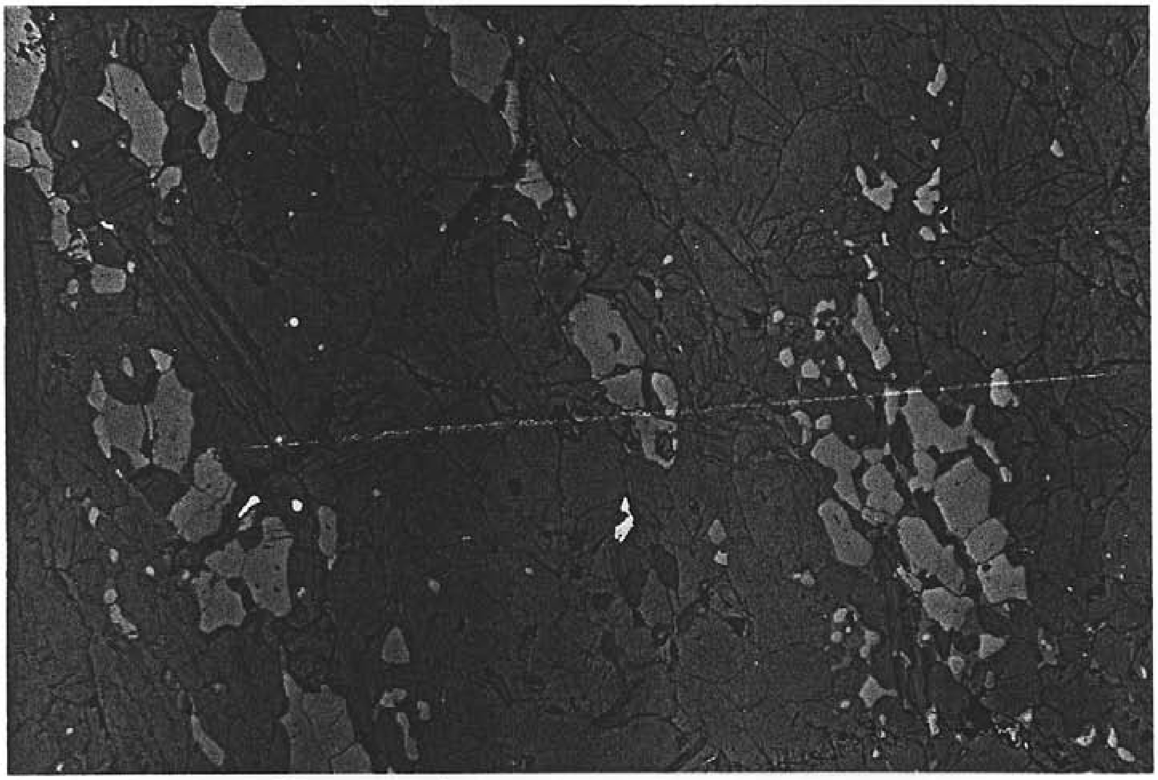

SAMPLE 544145 (Neg. 266-3)

SAMPLE 544145 (Neg. 266-4)

APPENDIX 7

SUMMARY OF FLUID INCLUSION PETROGRAPHY AND MICROTHERMOMETRY DOROTHY CLAIM GROUP

SUMMARY OF FLUID INCLUSION PETROGRAPHY AND MICROTHERMOMETRY DOROTHY CLAIM GROUP

by Kathryn P.E. Dunne, P. Geo.

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SUMMARY:

Four samples from the Dorothy Claim Group were used in this fluid inclusion study. These may be divided into two groups: banded calc-silicate rocks and brecciated quartz-sulphide veins. Garnet, quartz and carbonate (calcite) were used for fluid inclusion petrography and microthermometry. No fluid inclusions were noted in sphalerite. The fluid inclusions were compositionally of three types: 1) two-phase liquid-rich (NaCl-MgCl-H2O mixture); 2) three-phase liquid-rich with a solid rhombic calcite or dolomite daugher crystal (NaCl-MgCl-H2O mixture); and rarely 3) three-phase CO2-rich. Generally the inclusions were trapped in microfractures syn-crystal growth (pseudosecondary) or post crystal growth (secondary). The only primary inclusions noted were in late quartz veins crosscutting mineralization in the Quartz Vein sample. Microthermometric data plotted on a Homogenisation Temperature vs. Salinity diagram indicate a clustering of measurements between 150 and 450^{o}C and less than 15 equiv. wt.% NaCl (Fig 1). With fields for skarn, sedex and VMS are superimposed on the data the majority of measurements fall in the retrograde skarn field (Fig. 2). The presence of hydrous retrograde phases such as actinolite, epidote and chlorite in the first group suggest that the fluids may be late H2O-rich fluids which dominate through the retrograde stages of skarn formation. The absence of open space filling textures and primary fluid inclusions also implies an environment of deposition deeper than high-level near surface (deeper than VMS equivalent). Early formed euhedral quartz associated with garnet and sphalerite in the brecciated vein sample also falls within the retrograde skarn field. Brecciation and late quartz veining in this sample may have occurred post-skarn formation.

RECOMMENDATIONS FOR ADDITIONAL WORK:

1) Estimate of maximum fluid pressure due to force exerted by overlying rocks: lithostatic pressure
(requires knowledge of depth from surface)

There are a variety of methods for calculating fluid pressures from fluid inclusion data; however, these are dependent on satisfying various compositional criteria. For the NaCl-MgCl-H2O system apparent in these samples, the only available approximation is an estimation of the vapour pressure of the fluid at the homogenization temperature. This method estimates absolute pressure minimum modelled on the pure NaCl-H2O system and may only be used for homogenisation temperatures up to 300^{o}C. As such it is an approximation for the Dorothy Claim Group data. Minimum absolute pressures are between 50 to 110 bars for these data. To determine the maximum fluid pressure (assuming lithostatic conditions), stratigraphic depth of each sample must be known. Given in-situ samples this maximum pressure could be estimated.

2) Microthermometric work on garnet in the Quartz Vein sample to confirm the relationship of this sample to the others.

3) Additional microthermometric work on garnet (or sphalerite, if possible) in other related samples. This work may confirm prograde skarn temperatures and salinities.

Kathryn P.E. Dunne P.Geo

FLUID INCLUSION REPORT

by Kathryn P.E. Dunne

Project: Dorothy
Sample: 128544

Date: Dec 2, 1992
Date received: Nov 19, 1992

LOCATION: Coast Belt

HAND SAMPLE/THIN SECTION DESCRIPTION: (after Harris, 1992)
Banded epidote-rich skarn. Granular aggregate of epidote (~60%), amphibole (~20%), diopside (~10%), carbonate (~7%), quartz (~1-2%), sphene (~1%) and trace pyrrhotite, chalcopyrite and sphalerite.

FLUID INCLUSION SECTION DESCRIPTION:
Usable minerals for fluid inclusion studies are:
1) carbonate (probably calcite) which occurs interstitial to actinolite and epidote aggregates and seems to partially pseudomorph actinolite.
2) anhedral quartz which occurs enclosed within epidote, actinolite, diopside and carbonate

FLUID INCLUSION PETROGRAPHY:

Host Mineral: carbonate

table:

textures	paragenesis	%FI's	FI origin	FI shape	# of phases
interstitial	1	few	pseudo-secondary	smooth and irregular	3

Host Mineral: quartz

table:

textures	paragenesis	%FI's	FI origin	FI shape	# of phases
anhedral	1	several	pseudo-secondary	smooth and negative crystal	2, 3

GEOTHERMOMETRIC DATA:

Freezing Data:

Paragenesis	Temperature eutectic (°C)	Temperature last melt (°C)	Salinity eq. wt. % NaCl (°C)
carbonate	-29.1 -29.9	-1.8 -1.9 -4.7	3.0 3.1 7.4
quartz	-27	0.0 -0.1 -2.2 -3.2 -4.6	0 0.17 3.6 5.2 7.3

Heating Data:

Paragenesis	H2O Temperature homogenization (^{o}C)	Temperature decrepititation (^{o}C)
carbonate	234.2 320.5 390	487
quartz	357.0 357.8 364.0 382.8 393.0 399.9 403.2 406.1 428.8 443.4 447.4	

GRAPHS: see Figures 1, 2 and 3

SUMMARY:

Fluid inclusions were observed in quartz and carbonate (calcite) which occur interstitial to actinolite, epidote and diopside within sample 128544. Carbonate fluid inclusions form large, three phase, irregular to smooth shaped pseudo-secondary fluid inclusions. The inclusions are liquid-rich with distinctive rhombic daughter crystals that are highly birefringent in polarised light (Plate 1). These rhombic inclusions are either calcite or dolomite. Fluid inclusions in anhedral quartz are generally less than 3-5 microns (Plate 9), pseudo-secondary to secondary, smooth to negative crystal shaped with two or three phases. The three phase inclusions include rhombic daughter minerals, as in calcite (Plates 7 and 8), as well as rare CO2-rich inclusions (Plate 10).

Homogenisation temperatures and salinities were obtained from both the calcite and quartz described above. Quartz homogenisation temperatures are high (357-447^{o}C) and form a distinct range (Fig 4). Fluid inclusions in calcite span a larger but lower temperature range (234-390^{o}C; Fig. 4). First melting temperatures for calcite are around -29^{o}C and quartz at -27^{o}C. This suggests a MgCl2 component in the fluid. Pure NaCl-H2O solutions first melt at -20.8^{o}C and pure MgCl2-H2O solutions first melt at -33.6^{o}C. Since the MgCl-H2O-NaCl system is not well defined, salinities for quartz are calculated on the pure NaCl-H2O system. Salinities for quartz and calcite range from 3 to 7 equivalent weight percent (eq. wt. %) NaCl.

Although temperatures of fluid inclusions in anhedral quartz homogenise between 350 and 450^{o}C, salinities are less than 10 eq. wt.% NaCl and these inclusions plot in the retrograde rather than prograde skarn field on Fig. 2. The microthermometric data is inconsistant with either VMS or Sedex environments of deposition (too hot or too low salinity). The most satisfactory deposit type, from a fluid inclusion standpoint, would be a skarn; probably in the retrograde stages of formation. The fluid inclusion microthermometry and absence of primary fluid inclusions as well as textural evidence of calc-silicate mineral assemblages suggest an environment of deposition consistant with skarn formation.

by Kathryn P.E. Dunne

FLUID INCLUSION REPORT

Project: Dorothy
Sample: 54013

Date: Dec 2, 1992
Date received: Nov 19, 1992

LOCATION: Coast Belt

HAND SAMPLE/THIN SECTION DESCRIPTION: (after Harris, 1992)
Pyrrhotite-sphalerite-garnet rich skarn. Irregularly banded and patchy aggregate of mainly garnet (~40%), carbonate (~24%), actinolite (~15%), sphalerite (~10%), pyrrhotite (~5%) and quartz (~5%).

FLUID INCLUSION SECTION DESCRIPTION:
Usable minerals for fluid inclusion studies are:
1) carbonate (probably calcite) which occurs predominantly as disseminated "matrix" and
2) garnet which occurs as euhedral to anhedral individual crystals or loose aggregates assoCiated with carbonate throughout the section.

FLUID INCLUSION PETROGRAPHY:

Host Mineral: carbonate

table:

textures	paragenesis	%FI's	FI origin	FI shape	# of phases
syn-garnet and sulphides	1	several	pseudo-secondary	negative crystal	2, 3

Host Mineral: garnet

table:

textures	paragenesis	%FI's	FI origin	FI shape	# of phases
euhedral	1	rare	pseudo-secondary	irregular to negative crystal	2
anhedral	2	rare	secondary	negative crystal	2

GEOTHERMOMETRIC DATA:

Freezing Data:

Paragenesis	Temperature eutectic (^oC)	Temperature last melt (^oC)	Salinity eq. wt. % NaCl
carbonate	-26.0	-0.6	1.0
	-28.4	-1.4	2.3
	-29.6	-1.4	2.3
	-31.1	-1.7	2.8
	-31.5	-2.5	4.1
		-2.8	4.5
		-2.8	4.5
		-3.9	6.2
		-4.1	6.5
		-4.7	7.4
		-6.0	9.2
		-7.0	10.5
garnet - 1		-7.5	11.1

Heating Data:

Paragenesis	CO2 Temperature homogenization (^oC)	H2O Temperature homogenization (^oC)	Temperature decrepititation (^oC)
carbonate	39.0	190.0	
		190.2	
		190.4	
		195.8	
		197.8	
		199.0	
		204.3	
		205.4	
		207.0	
		216.3	
		216.8	
		226.6	
		230.5	
garnet - 1		314	
		349	
		355	
garnet - 2		174	

GRAPHS: see Figures 1, 2 and 4

SUMMARY:
Fluid inclusions were observed in patchy aggregates of garnet, carbonate and quartz within sample 54013. Two types of texturally distinct garnet are recognised in this section. These are: 1) euhedral garnet with no visible fluid inclusion defined growth zones (Plate 14) and 2) anhedral garnet characterised by growth zones defined by sub-microscopic fluid inclusions and abundant tiny secondary inclusion microfracture planes (Plate 12). Fluid inclusions in anhedral quartz are generally less than 5 microns (Plate 11), pseudo-secondary to secondary, smooth shaped and, where consisitant liquid-to-vapour ratios observed, temperatures of formation are predicted to be 230-275^oC (by petrography only). Carbonate which seems to form a 'matrix' to some of the garnet has distinct rhombic to smooth shaped pseudo-secondary fluid inclusions (Plates 13 and 15). The rhombic fluid inclusions form

parallel to cleavage traces (plate 15). All inclusions are two-phase liquid-rich. No CO_2-rich inclusions were noted during petrography.

Homogenisation temperatures and salinities were only obtained from the garnet and carbonate(calcite) described above. Garnet type 1 homogenisation temperatures are high (314-355^{o}C). A single homogenisation temperature from garnet type 2 was recorded at 174^{o}C. Fluid inclusions in calcite form a defined lower temperature range (190-230.5^{o}C; Fig. 4). First melting temperatures for calcite range from -26 to -31.5^{o}C which suggests a $MgCl_2$ component in the fluid. Pure NaCl-H_2O solutions first melt at -20.8^{o}C and pure $MgCl_2$-H_2O solutions first melt at -33.6^{o}C. Since the MgCl-H_2O-NaCl system is not well defined, salinities for quartz are calculated on the pure NaCl-H_2O system. Salinities for calcite range from 1 to 10.5 equivalent weight percent (eq. wt. %) NaCl; only one garnet salinity was obtained (11.1 eq. wt. %NaCl).

Garnet type 1 plots in the prograde skarn field (Fig. 2). This garnet is distinct from secondary inclusions in garnet type 2 and pseudo-secondary inclusions in calcite which plot in the retrograde skarn field (Fig.1). Fluid inclusion microthermometry, absence of primary fluid inclusions and textural evidence of calc-silicate mineral assemblages confirm an environment of deposition consistant with skarn formation.

FLUID INCLUSION REPORT

by Kathryn P.E. Dunne

Project: Dorothy
Sample: 54014

Date: Dec 2,1992
Date received: Nov 19.1992

LOCATION: Coast Belt

HAND SAMPLE/THIN SECTION DESCRIPTION: (after Harris, 1992)
Banded calc-silicate rock comprising an intergrowth of quartz, carbonate, chlorite and sub-parallel sulphide streaks separated by a granoblastic intergrowth of quartz and carbonate with laminar concentrations of feldspar and other minor constituents. Proportions of mineral present are: quartz (~48%), carbonate (~21%), chlorite (~9%), sphalerite (~5%), epidote (~4%), potassium feldspar (~4%), sericite (~4%), pyrrhotite (~2%) and actinolite (~1%).

FLUID INCLUSION SECTION DESCRIPTION:
Usable minerals for fluid inclusion studies are:
1) anhedral quartz and
2) carbonate (probably calcite)
both occur as a granoblastic intergrowth

FLUID INCLUSION PETROGRAPHY:

Host Mineral: quartz

table:

textures	paragenesis	%FI's	FI origin	FI shape	# of phases
anhedral	1	abundant	pseudo-secondary	smooth	2

Host Mineral: carbonate

table:

textures	paragenesis	%FI's	FI origin	FI shape	# of phases
anhedral	1	several	secondary	smooth, negative crystal	2

GEOTHERMOMETRIC DATA:

Freezing Data:

Paragenesis	Temperature eutectic (°C)	Temperature last melt (°C)	Salinity eq. wt. % NaCl (°C)
quartz	-24.0	-3.3	5.3
	-24.5	-3.3	5.3
	-32.2	-3.9	6.2
	-34.0	-4.3	6.8
	-34.1	-4.5	7.1
	-36.8	-4.5	7.1
		-4.8	7.5
		-4.8	7.5
		-6.5	9.8
		-7.6	11.2
		-9.4	13.3
		-9.8	13.7
		-14.0	17.7
		-14.5	18.2
calcite	-20	-3.9	6.2
	-27	-4.1	
		-5.9	
		-6.5	

Heating Data:

Paragenesis	H2O Temperature homogenization (°C)	Temperature decrepititation (°C)
quartz	262.5	349
	285.0	
	290.0	
	305.3	
	308.7	
	309.1	
	312.6	
	317.6	
	321.6	
	336.9	
carbonate	199.7	
	273.0	
	356.0	
	403.0	

GRAPHS: see Figures 1, 2 and 5

SUMMARY:
Fluid inclusion work concentrated on the 3-4 mm granoblastic intergrowth of quartz and carbonate in this sample. The quartz is anhedral characterised by many large, smooth, two-phase liquid-rich pseudo-secondary fluid inclusions (Plate 16). These pseudo-secondary inclusions form in quartz crystal microfractures that are interpreted to be syn-crystal growth. Fluid inclusions in carbonate (probably calcite) are tubular in shape, two-phase and typically form secondary trails that crosscut cleavage planes (Plate 17).

Homogenisation temperatures and salinities were only obtained from the quartz and calcite described above. Quartz homogenisation temperatures fall in a defined range (262.5-336.9^{o}C) whereas calcite spans a large temperature range (199.7-403^{o}C; Fig. 5). First melting temperatures for quartz range from -24 to -36.8^{o}C which suggests a MgCl2 component in the fluid. Pure NaCl-H2O solutions first melt at -20.8^{o}C, pure MgCl2-H2O solutions first melt at -33.6^{o}C and MgCl2-NaCl-H2O solutions first melt at -35^{o}C. Since the MgCl-H2O-NaCl system is not well defined, salinities for quartz are calculated on the pure NaCl-H2O system. First melt temperatures for calcite range from -20 to -27^{o}C. Salinities for both quartz and calcite exceed 5 equivalent weight percent (eq. wt. %) NaCl; quartz salinities reach 18.2 eq. wt. %NaCl.

Overall quartz and calcite from 5401~~8~~4 plot in the range of retrograde skarns, VMS and some samples even plot in the sedex deposit field (Fig. 2). The presence of hydrous retrograde phases such as actinolite, epidote and chlorite in the section suggest that the fluids may be late H2O-rich fluids which dominate through the retrograde stages of skarn formation. Also, the absence of open space filling textures and primary fluid inclusions suggests an environment of deposition deeper than high-level near surface (VMS equivalent).

FLUID INCLUSION REPORT

by Kathryn P.E. Dunne

Project: Dorothy
Sample: Quartz Vein

Date: Dec 2, 1992
Date received: Nov 19, 1992

LOCATION: Coast Belt

HAND SAMPLE/THIN SECTION DESCRIPTION:
Brecciated pyrite-sphalerite-quartz vein cut by hairline veinlets of quartz and potassium feldspar. Mineral percentages include quartz (~75%), pyrite (~15%), sphalerite (~5%), potassium feldspar (~3%) and garnet (~2%)

FLUID INCLUSION SECTION DESCRIPTION:
Usable minerals for fluid inclusion studies are:
1) quartz which occurs in at least four distinct paragenetic vein stages: euhedral with no growth zones, anhedral with microfractures, euhedral with growth zones and overgrowths and
2) garnet occurs intergrown with sphalerite. (Although rare non-decrepitated inclusions in garnet were photographed, microthermometry on this garnet was not possible.)

FLUID INCLUSION PETROGRAPHY:

Host Mineral: quartz

table:

textures	paragenesis	%FI's	FI origin	FI shape	# of phases
euhedral intergrown with sulphides; no growth zones	1	several	pseudo-secondary and secondary	smooth and negative crystal	2, 3
anhedral	2	abundant	secondary	smooth	2
euhedral with growth zones	3	several	primary	smooth, negative crystal	2
overgrowths	4	virtually none	primary	-	-

Host Mineral: garnet

table:

textures	paragenesis	%FI's	FI origin	FI shape	# of phases
anhedral	1	rare	pseudo-secondary	smooth, irregular	2

GEOTHERMOMETRIC DATA:

Freezing Data:

Paragenesis	Temperature eutectic (^{O}C)	Temperature last melt (^{O}C)	Salinity eq. wt. % NaCl (^{O}C)
quartz - 1	-26.8	-2.5 -5.2	4.1 8.1
quartz - 3		0.0	0

Heating Data:

Paragenesis	H2O Temperature homogenization (^{o}C)	Temperature decrepititation (^{o}C)
quartz - 1	227.1 232.6 243.0 254.6 259.3 260.7 263.1 281.6	
quartz - 3	122.2 133.3 144.7 151.3 177.0	

GRAPHS: See Figures 1, 2 and 6

SUMMARY:
This sample is distinct from 128544, 54013 and 54014 by being a brecciated quartz-garnet-sulphide vein (?) cut by fine quartz and potassium feldspar veinlets. Four types of texturally distinct quartz are recognised in this section. From oldest to youngest these are: 1) euhedral quartz with no visible fluid inclusion defined growth zones associated with garnet and sulphides (Plate 20); 2) anhedral quartz characterised by abundant secondary inclusion microfracture planes (Plates 21 and 22); 3) euhedral quartz in late crosscutting veinlets with distinct growth zones defined by small primary fluid inclusions (Plate 23) and 4) quartz overgrowths with a paucity of fluid inclusions on type 3 euhedral quartz (Plate 24). Most inclusions were two-phase liquid-rich except rare 3-phase (liquid, vapour, unknown solid daughter crystal) inclusions of type 1 quartz. No CO2-rich inclusions were noted during petrography. CO2-rich inclusions (ie 3-phase H2O-CO2 bearing inclusions) are not observed in the VMS and sedex environments and only occasionally described from the skarn environment.

Rare two-phase, irregular to smooth shaped inclusions were noted in garnet associated with sphalerite (Plate 19). Unfortunately, microthermometry was not undertaken on these inclusions.

Homogenisation temperatures and salinities were only obtained from quartz types 1 and 3. Early quartz (type 1) has a distinctly higher homogenisation temperature range (227-281^{o}C) than late quartz (122.2-177^{o}C; Fig. 6). A first melting temperatures for early quartz is -26.8^{o}C which suggests a MgCl2 component in the fluid. Pure NaCl-H2O solutions first melt at -20.8^{o}C and pure MgCl2-H2O solutions first melt at -33.6^{o}C. Since the MgCl-H2O-NaCl system is not well defined, salinities are calculated on the pure NaCl-H2O system. Salinities for both quartz types do not exceed 8.1 equivalent weight percent NaCl.

Quartz vein samples plot within the range of retrograde skarns and VMS deposits (Fig. 2). Petrographically, the absence of open space filling textures and primary fluid inclusions in early quartz associated with sphalerite favours the skarn environment of deposition. The brecciation event and late quartz veining probably occurred at a higher, near surface environment.

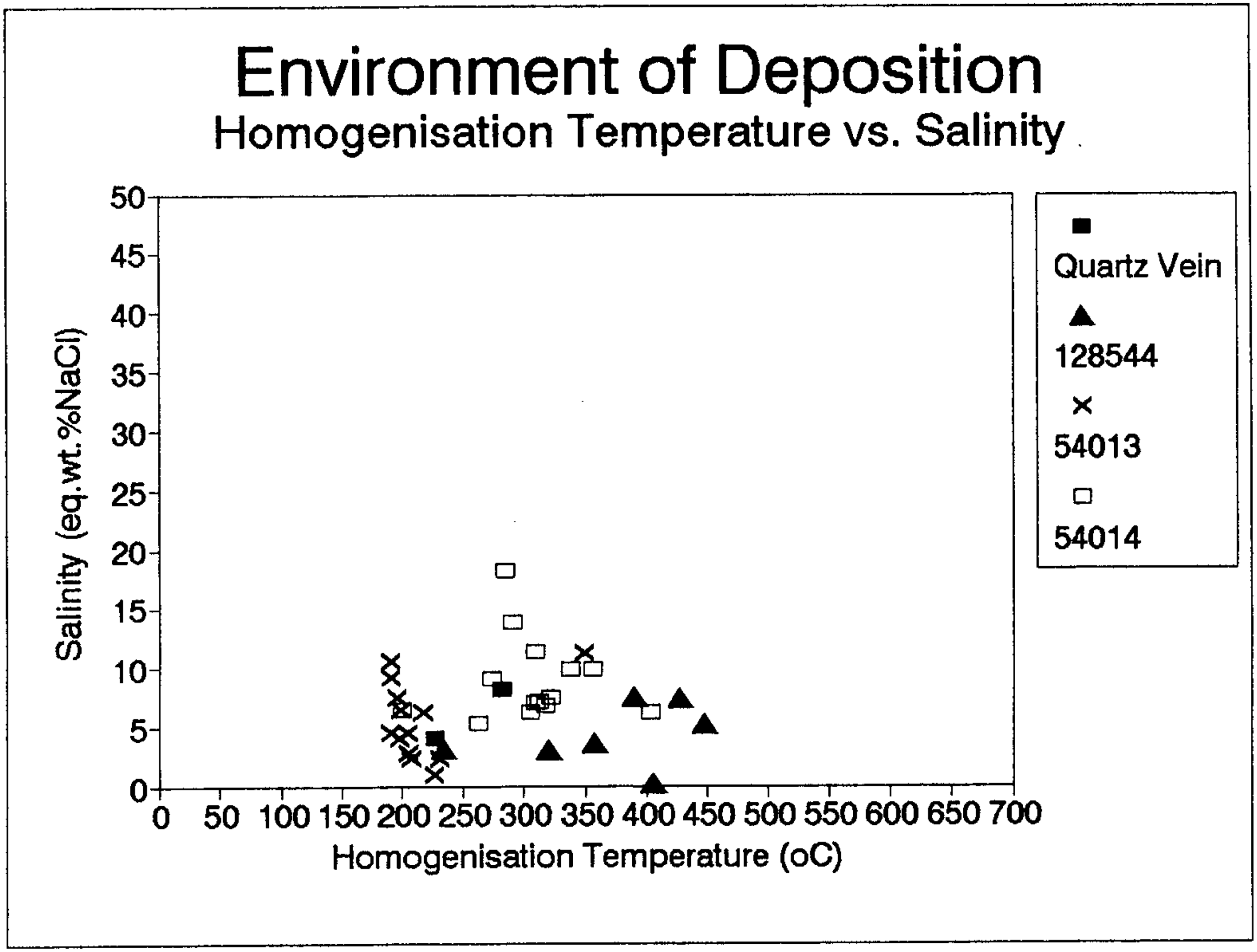

Environment of Deposition
Homogenisation Temperature vs. Salinity
Salinity (eq.wt.%NaCl)
50
45
40
35
30
25
20
15
10
5
0
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700
Homogenisation Temperature (oC)
Quartz Vein
128544
54013
54014

Figure 1

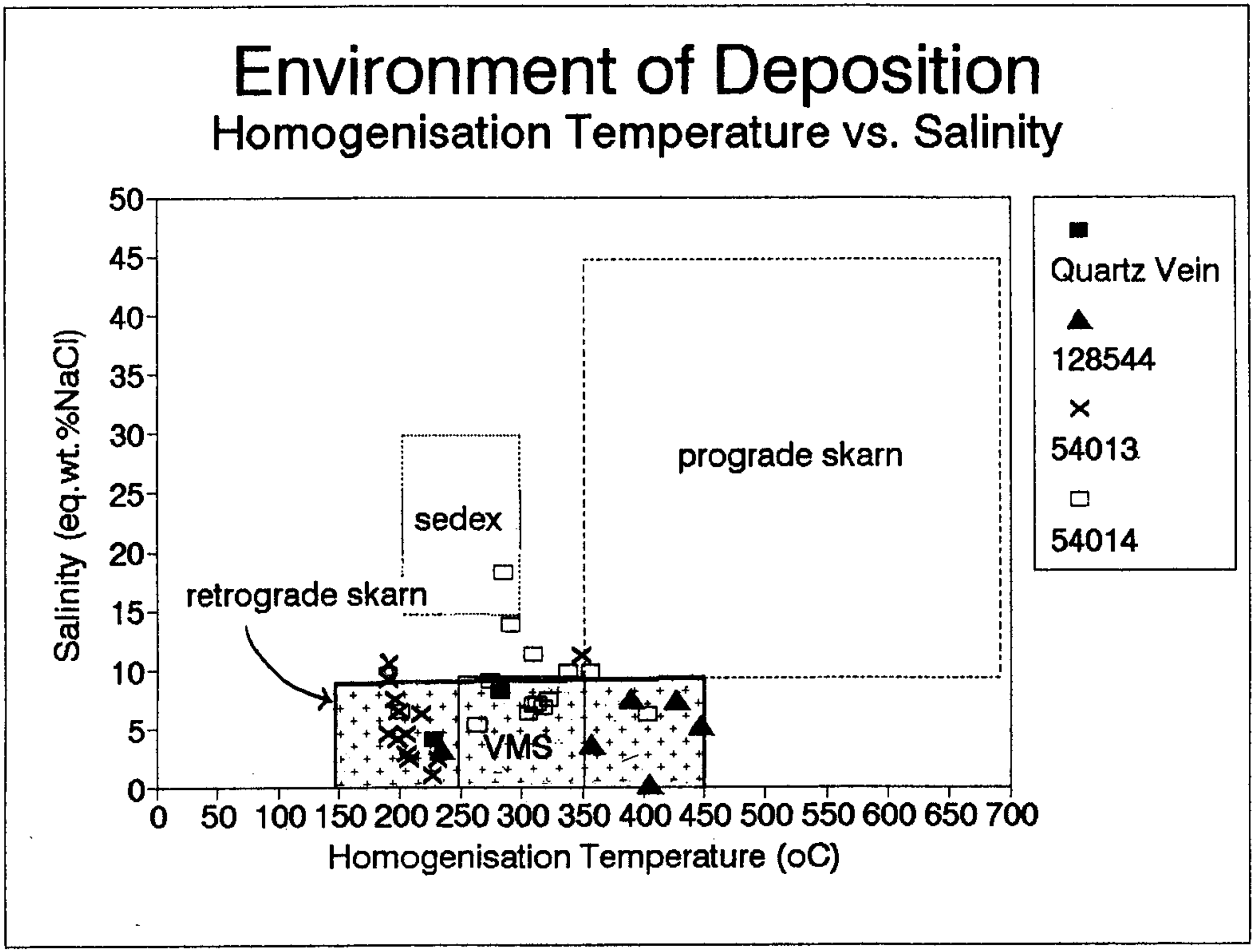

Environment of Deposition
Homogenisation Temperature vs. Salinity
Salinity (eq.wt.%NaCl)
Homogenisation Temperature (oC)
0
5
10
15
20
25
30
35
40
45
50
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
sedex
prograde skarn
retrograde skarn
VMS
Quartz Vein
128544
54013
54014

Figure 2

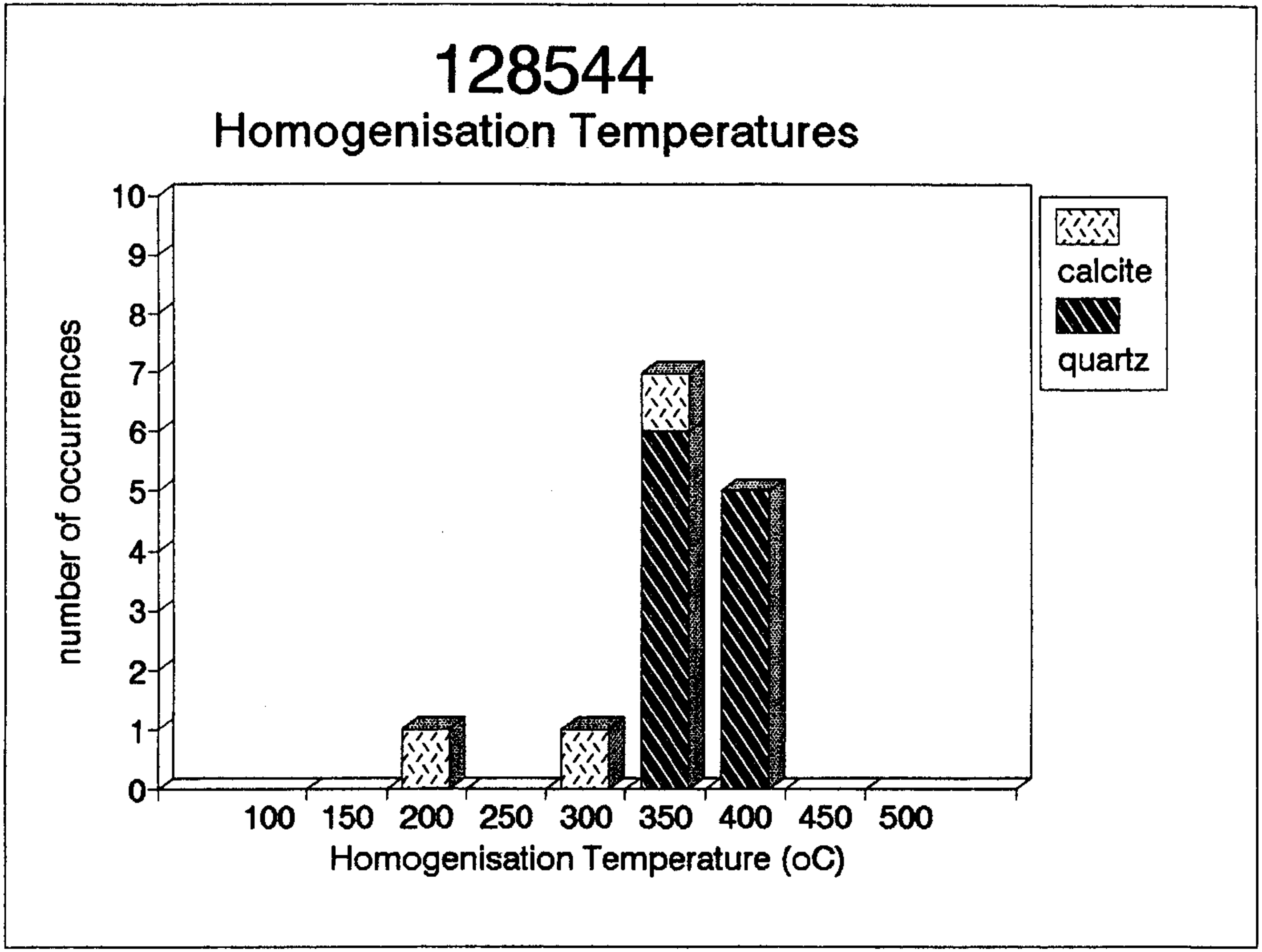

128544
Homogenisation Temperatures
10
9
8
7
6
5
4
3
2
1
0
number of occurrences
100 150 200 250 300 350 400 450 500
Homogenisation Temperature (oC)
calcite
quartz

Figure 3

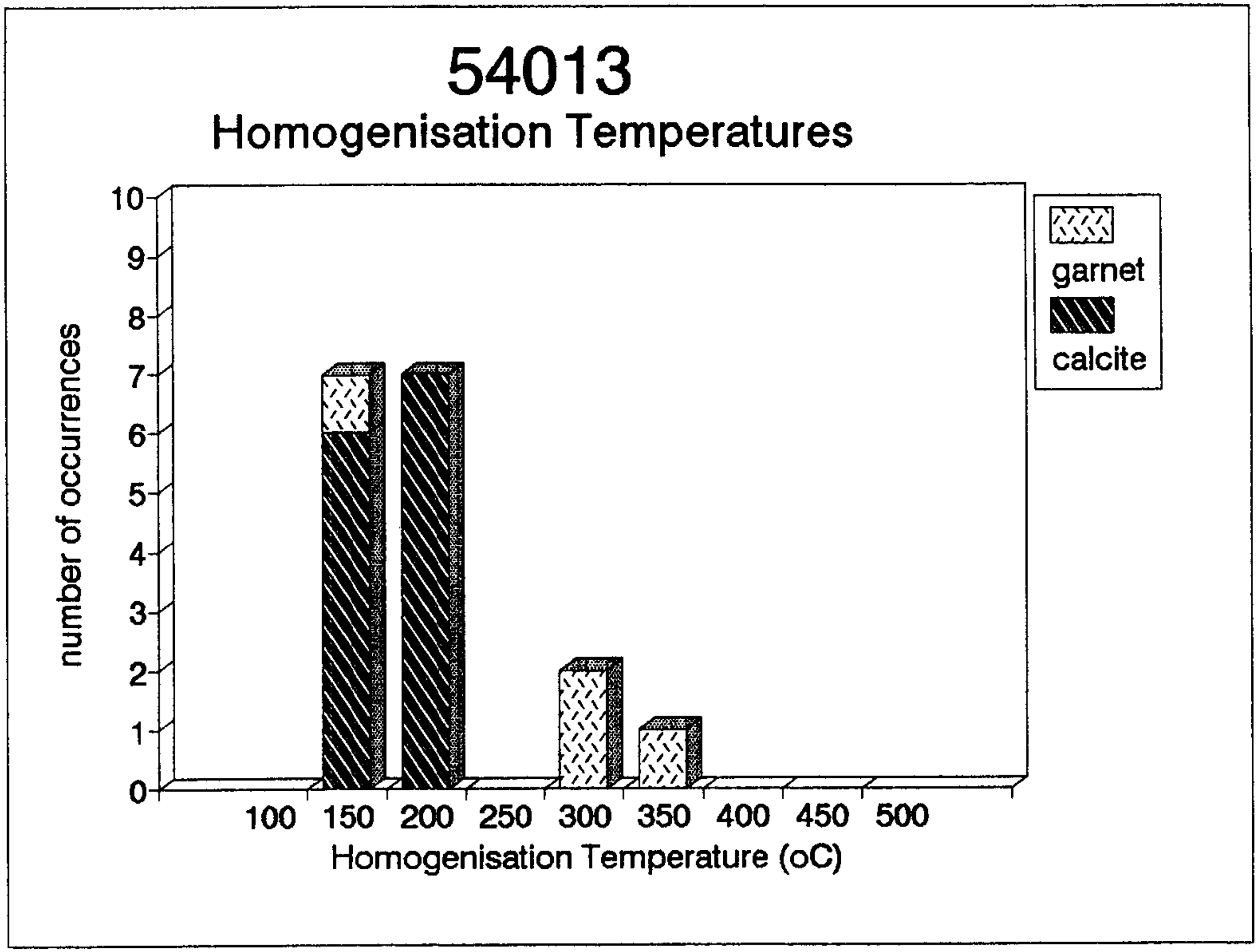

54013
Homogenisation Temperatures
10
9
8
7
6
5
4
3
2
1
0
number of occurrences
100
150
200
250
300
350
400
450
500
Homogenisation Temperature (oC)
garnet
calcite

Figure 4

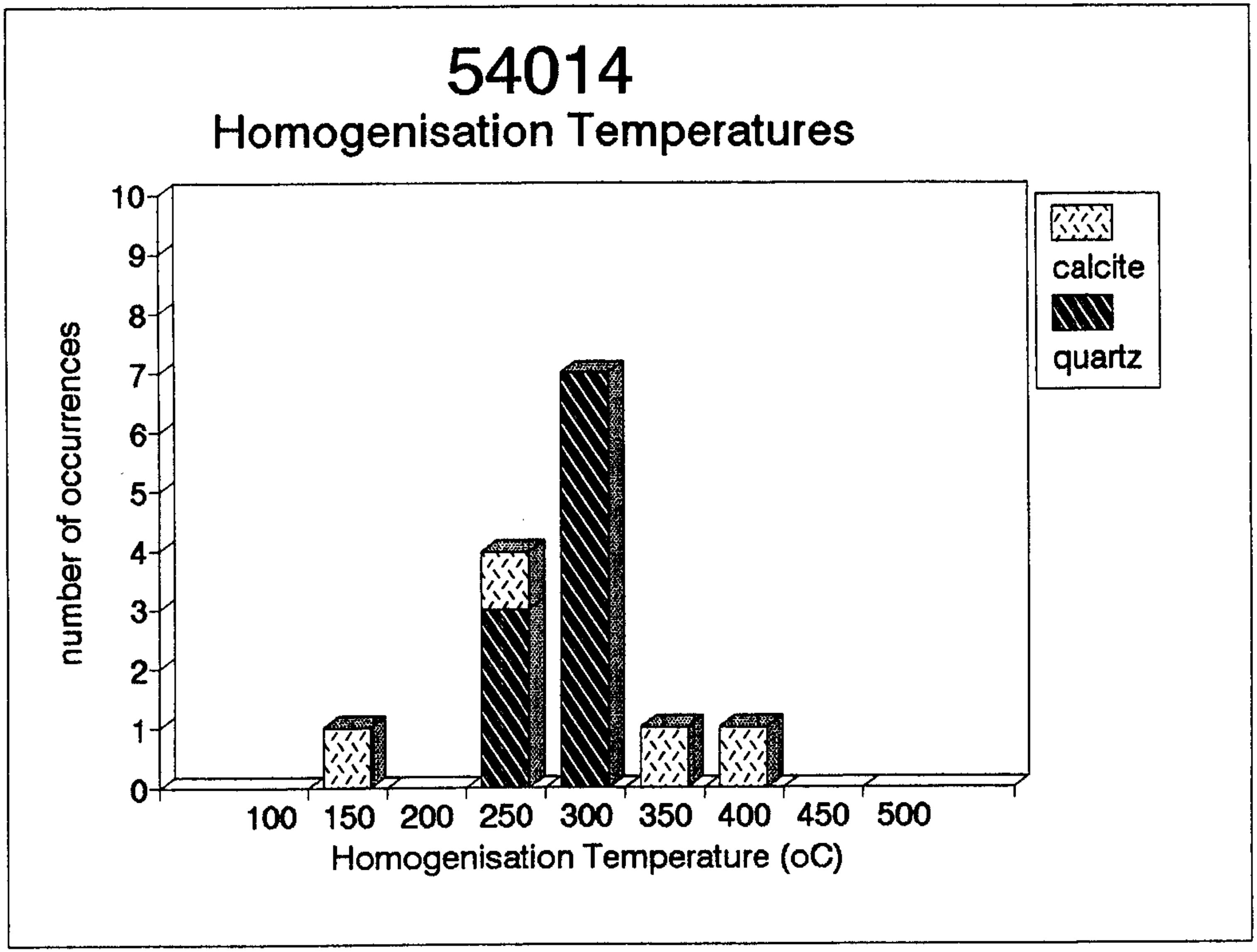

54014
Homogenisation Temperatures
number of occurrences
0
1
2
3
4
5
6
7
8
9
10
calcite
quartz
100
150
200
250
300
350
400
450
500
Homogenisation Temperature (oC)

Figure 5

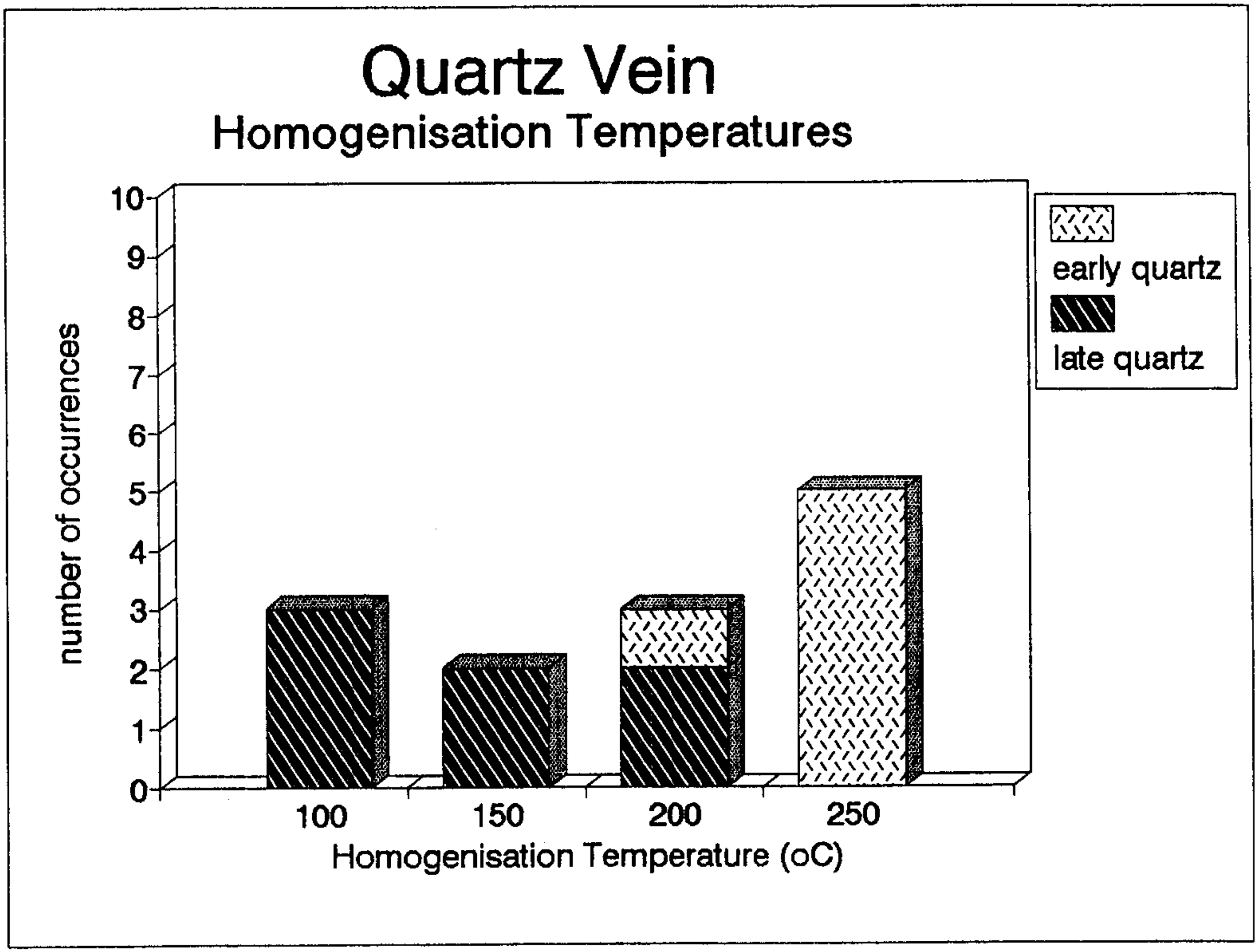

Quartz Vein
Homogenisation Temperatures
number of occurrences
0
1
2
3
4
5
6
7
8
9
10
100
150
200
250
Homogenisation Temperature (oC)
early quartz
late quartz

Figure 6

LIST OF PLATES:

1. Sample 128544: Large, three-phase, smooth-shaped pseudo-secondary (PS) inclusion in calcite. Note distinctive highly birefringent rhombic-shaped daughter crystal of calcite or dolomite in centre of photograph (Field of view = 0.22 mm, crossed polars)

2. Sample 128544: Same fluid inclusion as above taken at first melting temperature of -29.1°C. Note frozen vapour bubble. Ice + MgCl2.12H2O or NaCl.2H2O are also present (Field of view = 0.22mm, plane polarised light)

3. Sample 128544: Same fluid inclusion as above taken with last ice and hydrohalite/hydromagnesium - chloride crystals visible (four rounded spheres) at temperature of -4.9°C. Note frozen vapour bubble. Ice + MgCl2.12H2O or NaCl.2H2O are also present (Field of view = 0.22mm, plane polarised light)

4. Sample 128544: Same fluid inclusion as above taken at last melting temperature of -2.5°C. Note rounded vapour bubble. Ice + MgCl2.12H2O or NaCl.2H2O are no longer present (Field of view = 0.22mm, plane polarised light)

5. Sample 128544: Same fluid inclusion as above taken on heating at 196.3°C. Note vapour bubble has reduced in size. (Field of view = 0.22mm, plane polarised light)

6. Sample 128544: Same fluid inclusion as above taken at homogenisation temperature of 234.0°C. Note vapour bubble has disappeared since the inclusion has homogenised to a two phase liquid + solid. (Field of view = 0.22mm, plane polarised light)

7. Sample 128544: Two and three-phase negative crystal shaped PS inclusions in quartz. (Field of view = 0.22mm, plane polarised light)

8. Sample 128544: Same inclusion as #7 except in polarised light birefringent carbonate daughter crystals are evident. (Field of view = 0.22mm, crossed polars)

9. Sample 128544: Two-phase, irregular PS inclusions with consistant liquid to vapour ratios implying estimated temperatures of homogenization of 200-230oC in quartz (Field of view = 0.22mm, plane polarised light)

10. Sample 128544: Two and three phase (apparently CO2-rich), smooth PS in quartz (Field of view = 0.22mm, plane polarised light).

11. Sample 54013: Two-phase, smooth PS inclusions with consistant liquid to vapour ratios in quartz. Petrographically this would suggest homogenization temperatures greater than 250oC. (Field of view = 0.16 mm, plane polarised light).

12. Sample 54013: Primary growth zones in garnet outlined by sub-microscopic fluid inclusions. Note trails of secondary inclusions (S) in garnet are only slightly larger (still < 1 micron and unusable from a fluid inclusion standpoint). (Field of view = 0.22 mm, plane polarised light).

13. Sample 54013: Two-phase, smooth PS/S inclusions in calcite. Note presence of both liquid and vapour-rich inclusions in the same microfractures. (Field of view = 0.22 mm, plane polarised light)

14. Sample 54013: Decrepitated PS inclusions in garnet ar obviously unusable. (Field of view = 0.22 mm, plane polarised light)

15. Sample 54013: Planes of two-phase, negative crystal shaped PS inclusions in calcite (Field of view = 0.22 mm, plane polarised light).

16. Sample 54014: Two-phase negative crystal shaped PS inclusions in quartz suggests temperatures of homogenisation greater than 275oC (Field of view = 0.22 mm, plane polarised light).

17. Sample 54014: Planes of two-phase, tubular, smooth PS inclusions in calcite (Field of view = 0.22 mm, plane polarised light).

18. Sample Quartz Vein: Two-phase, irregularly shaped PS inclusions trapped in early quartz have consistant liquid to vapour ratios (Field of view = 0.22 mm, plane polarised light)

19. Sample Quartz Vein: Two-phase, smooth to irregular shaped PS in garnet. Unfortunately, these inclusions were not tested by microthermometry (Field of view = 0.22 mm, plane polarised light).

20. Sample Quartz Vein: Early formed euhedral shaped quartz with no apparent growth zones defined by fluid inclusions (Field of view = 1.6 mm, plane polarised light).

21. Sample Quartz Vein: Anhedral quartz (Field of view = 1.6 mm, plane polarised light).

22. Sample Quartz Vein: Millions of healed microfractures defined by secondary fluid inclusions in anhedral quartz (Field of view = 0.22 mm, plane polarised light).

23. Sample Quartz Vein: Late quartz veinlet cuts anhedral quartz. This late quartz is defined by euhedral shape and presence of growth zones defined by primary fluid inclusions. (Field of view = 1.6 mm, plane polarised light).

24. Sample Quartz Vein: Magnified view of #23 showing primary fluid inclusions in growth zone and barren quartz overgrowth (Field of view = 0.63 mm, plane polarised light).

25. Sample Quartz Vein: Detail of two phase primary fluid inclusions in growth zone of #24 (Field of view = 0.16 mm, plane polarised light).

26. Sample Quartz Vein: Solid rhombic inclusions (probably calcite) in quartz (Field of view = 0.22 mm, plane polarised light).

27. Sample Quartz Vein: Two phase, negative crystal shaped PS inclusions in early formed quartz (Field of view = 0.16 mm, plane polarised light).

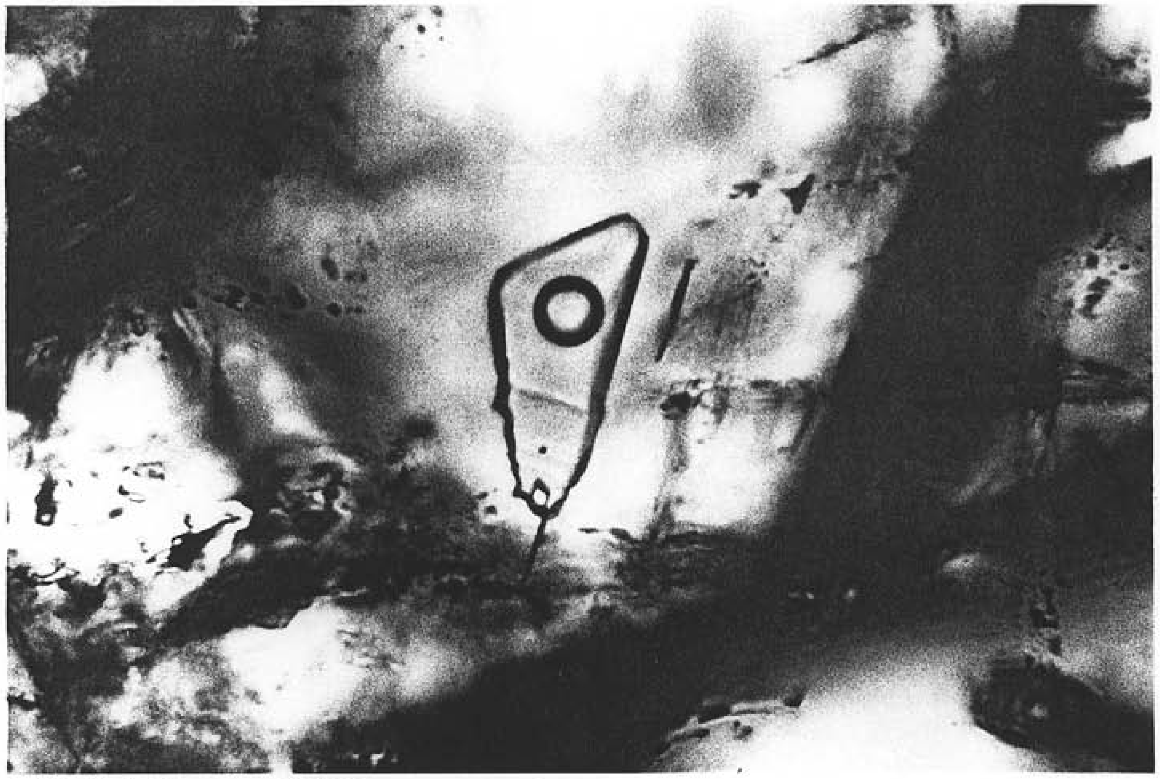


PLATE 1 (Dunne, 1992)

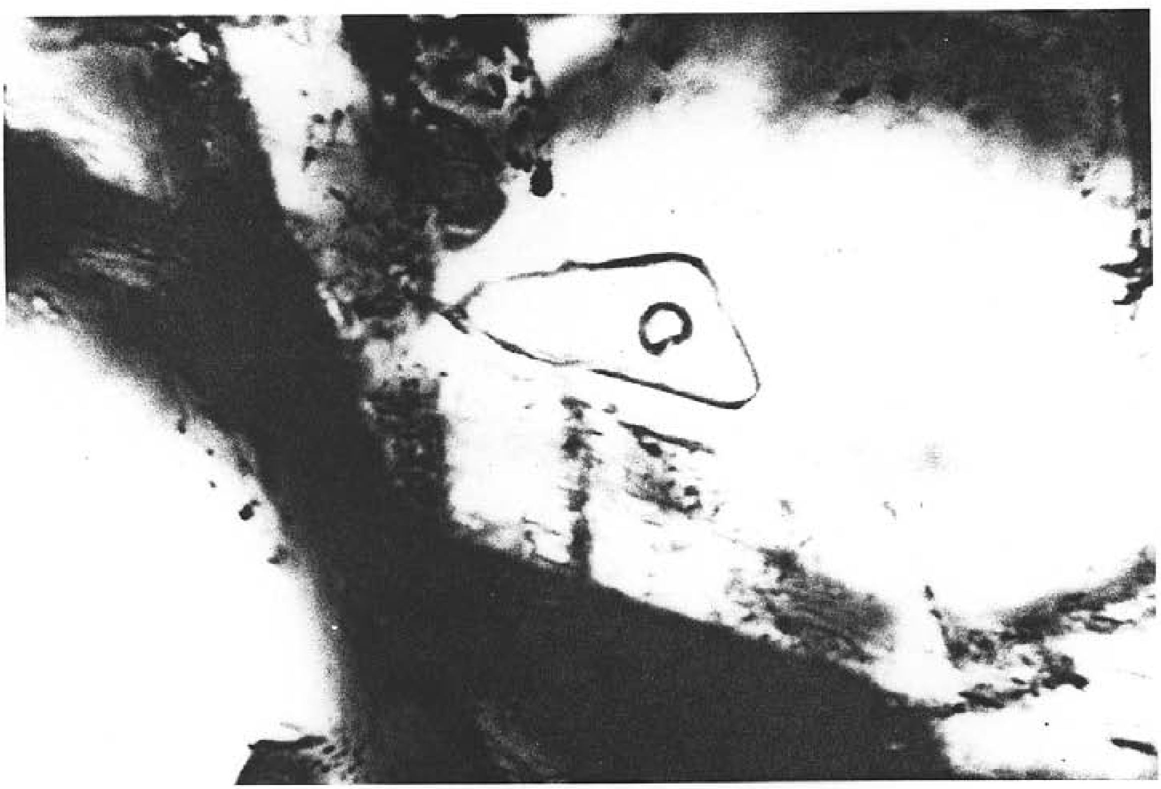


PLATE 2 (Dunne, 1992)

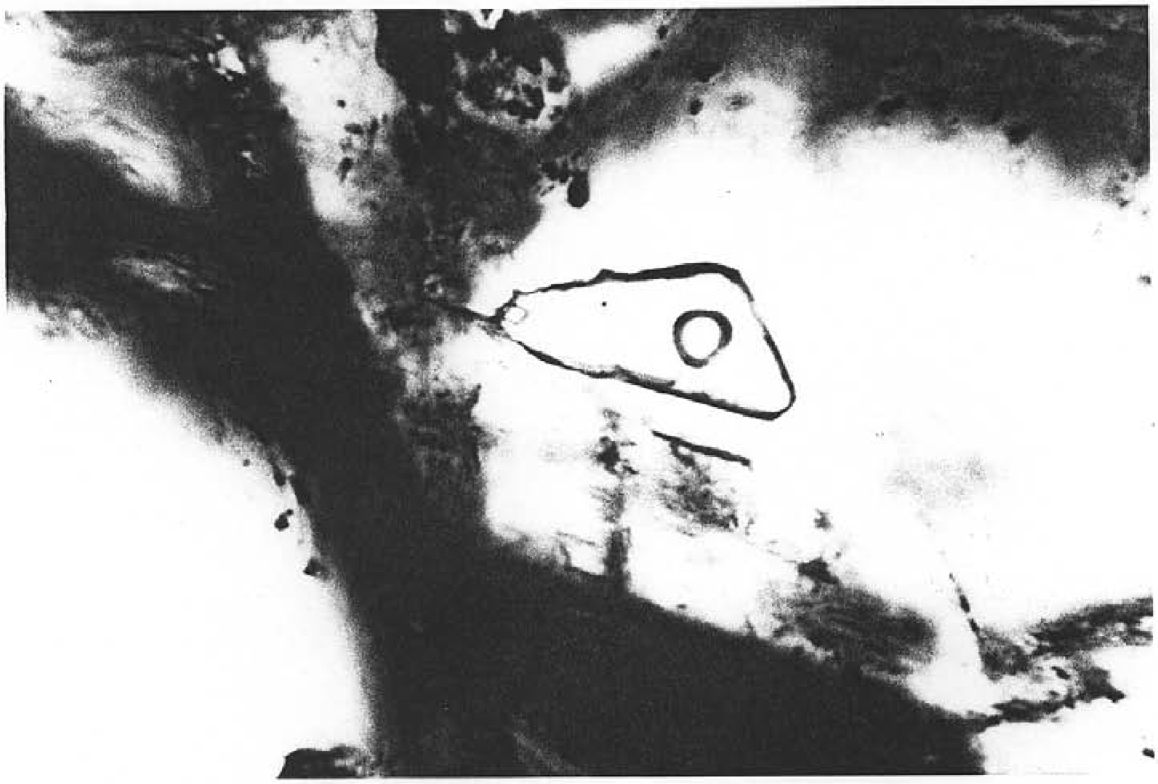


PLATE 3 (Dunne, 1992)

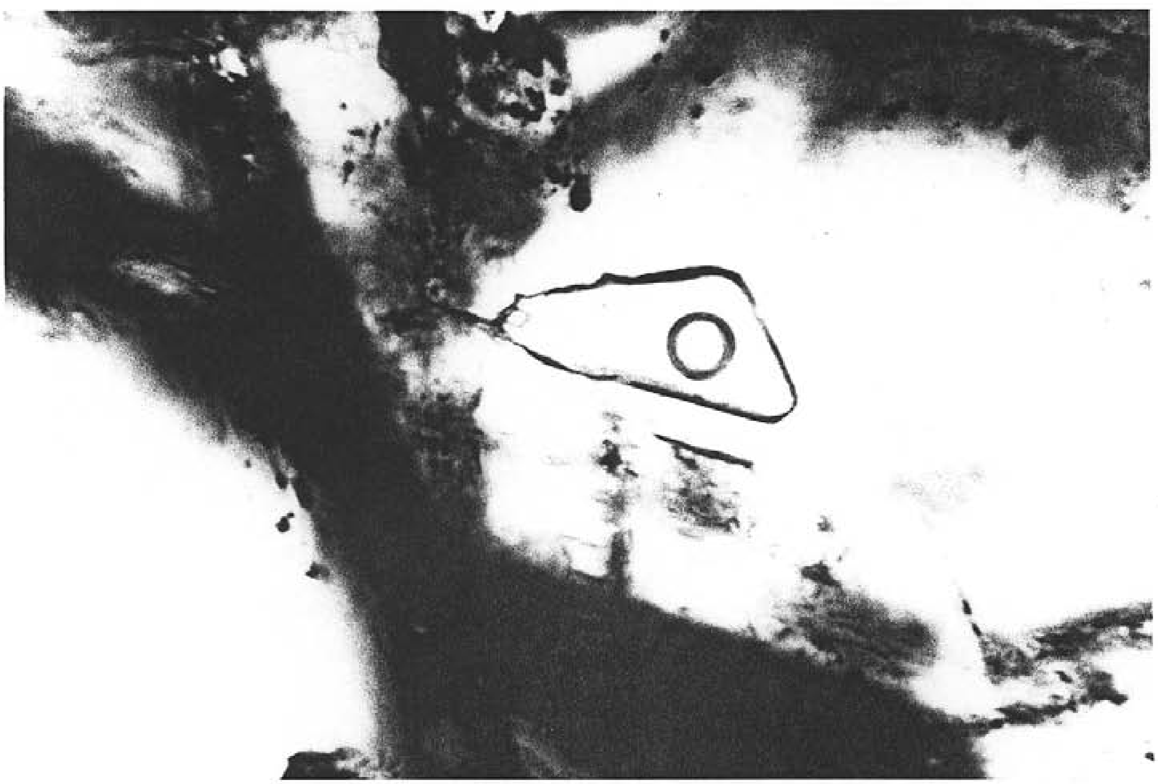


PLATE 4 (Dunne, 1992)

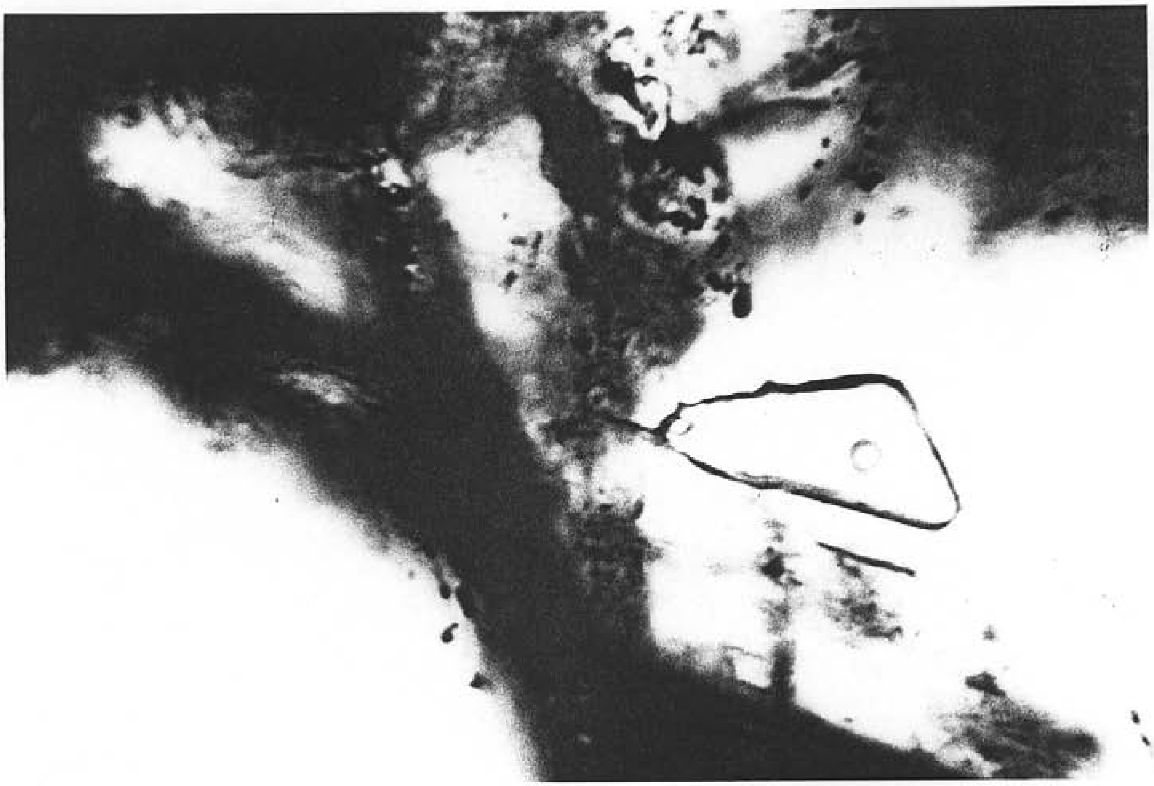


PLATE 5 (Dunne, 1992)

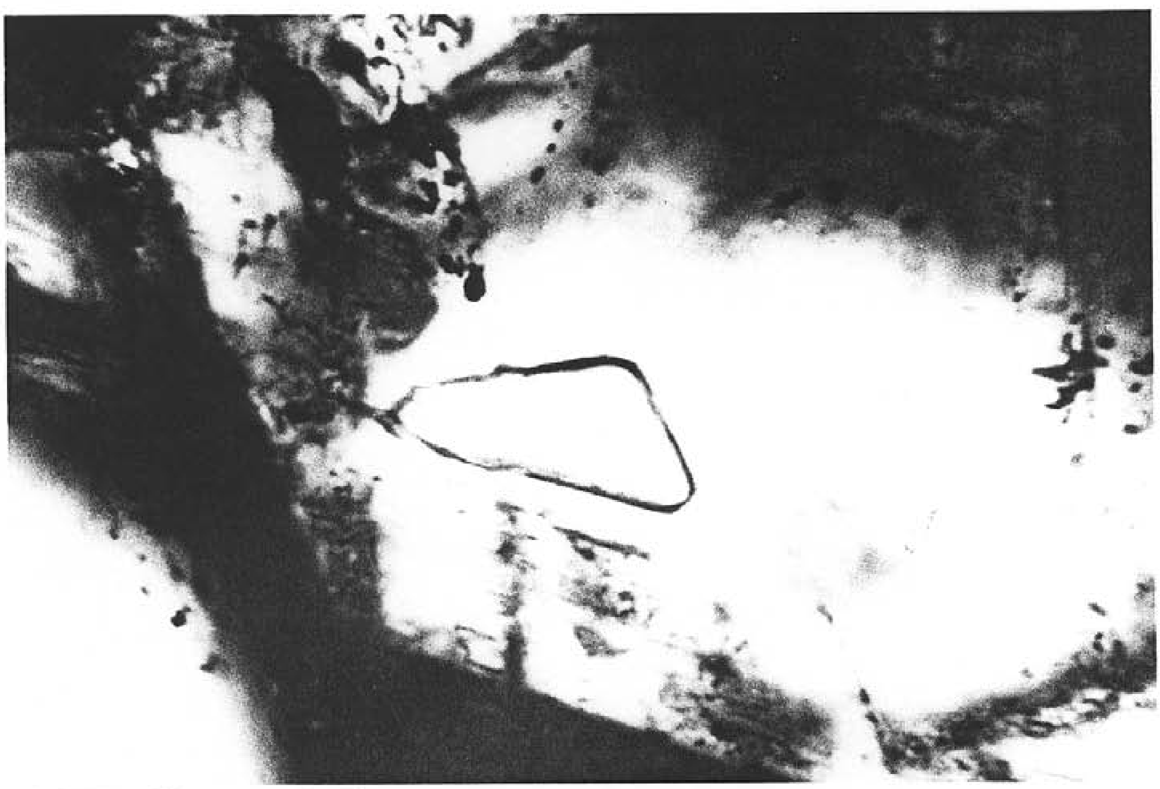


PLATE 6 (Dunne, 1992)

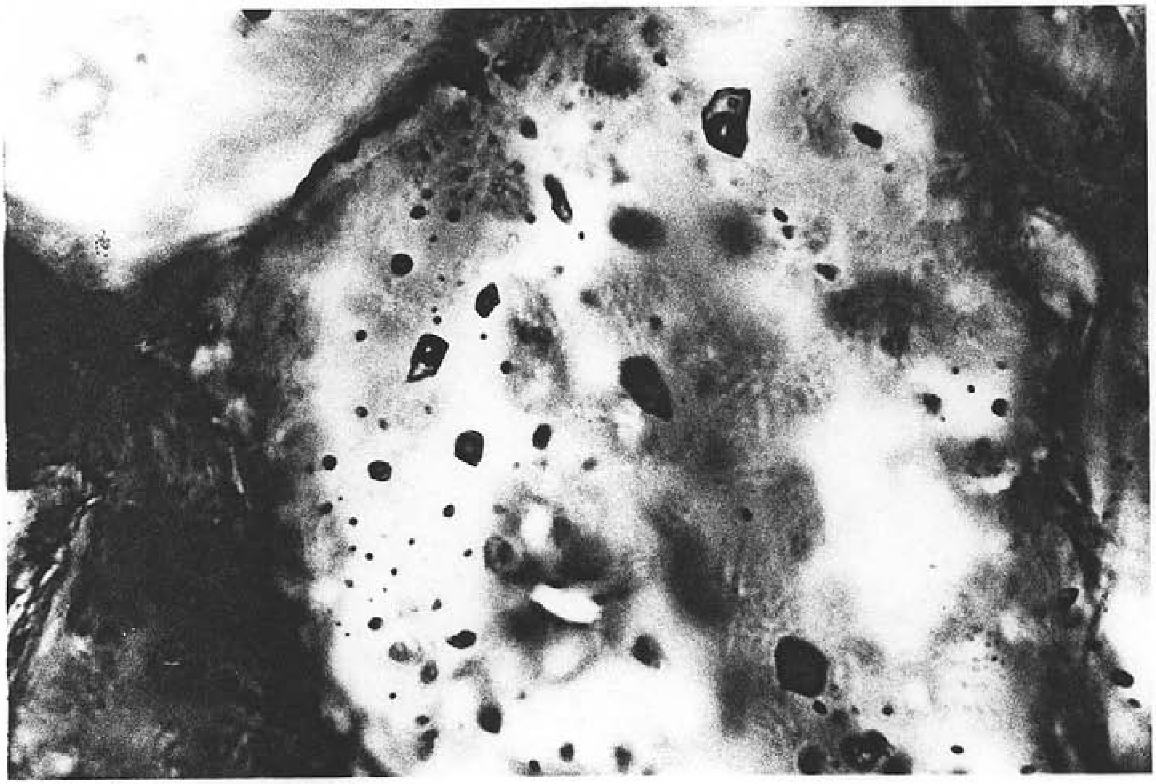


PLATE 7 (Dunne, 1992)

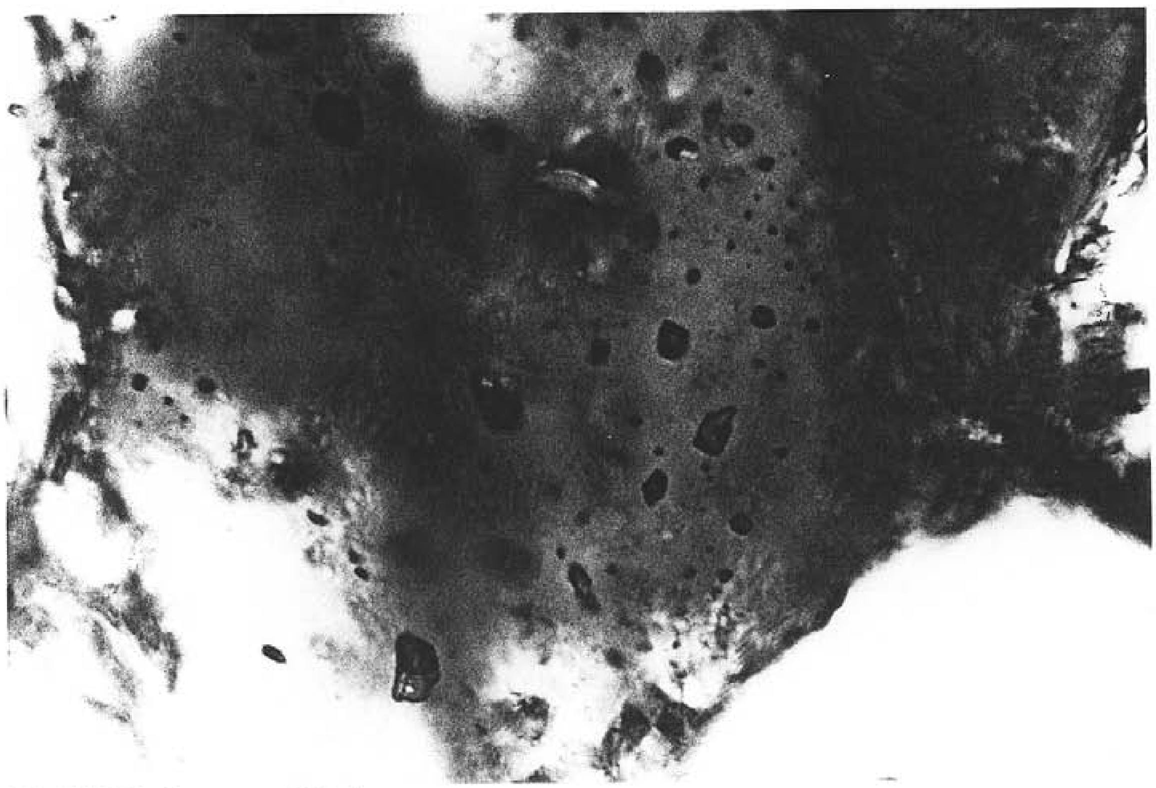


PLATE 8 (Dunne, 1992)

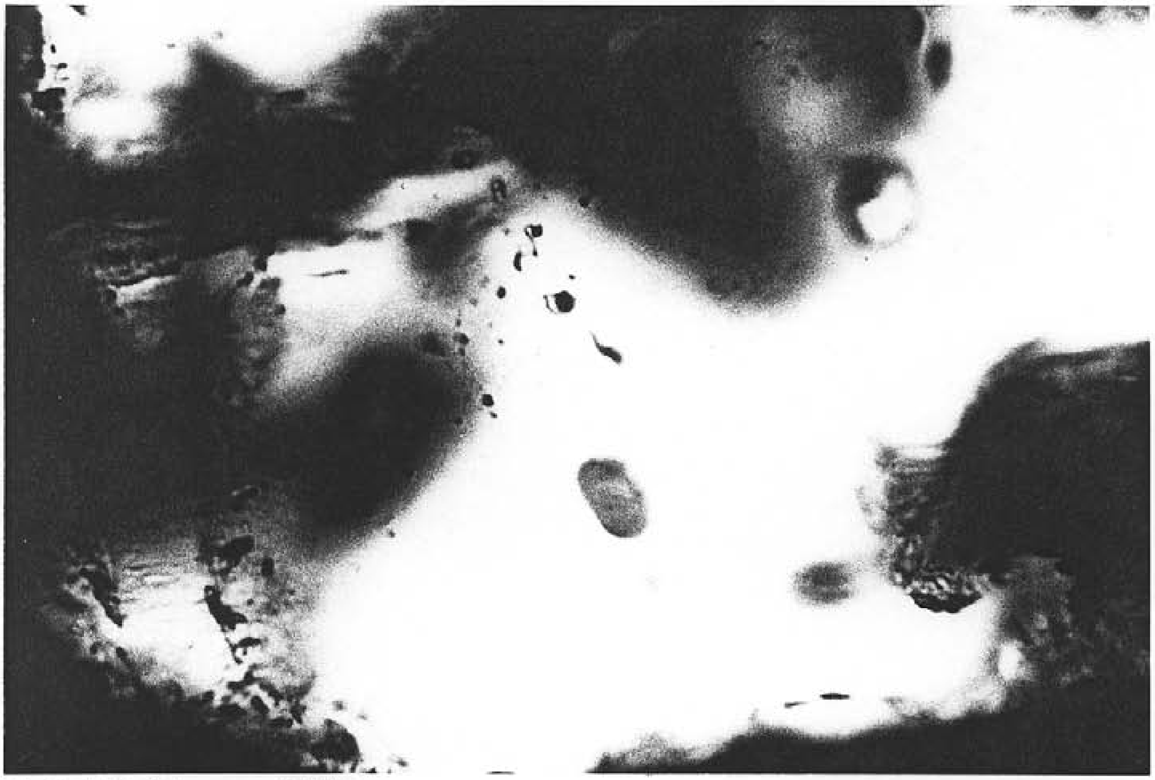


PLATE 9 (Dunne, 1992)

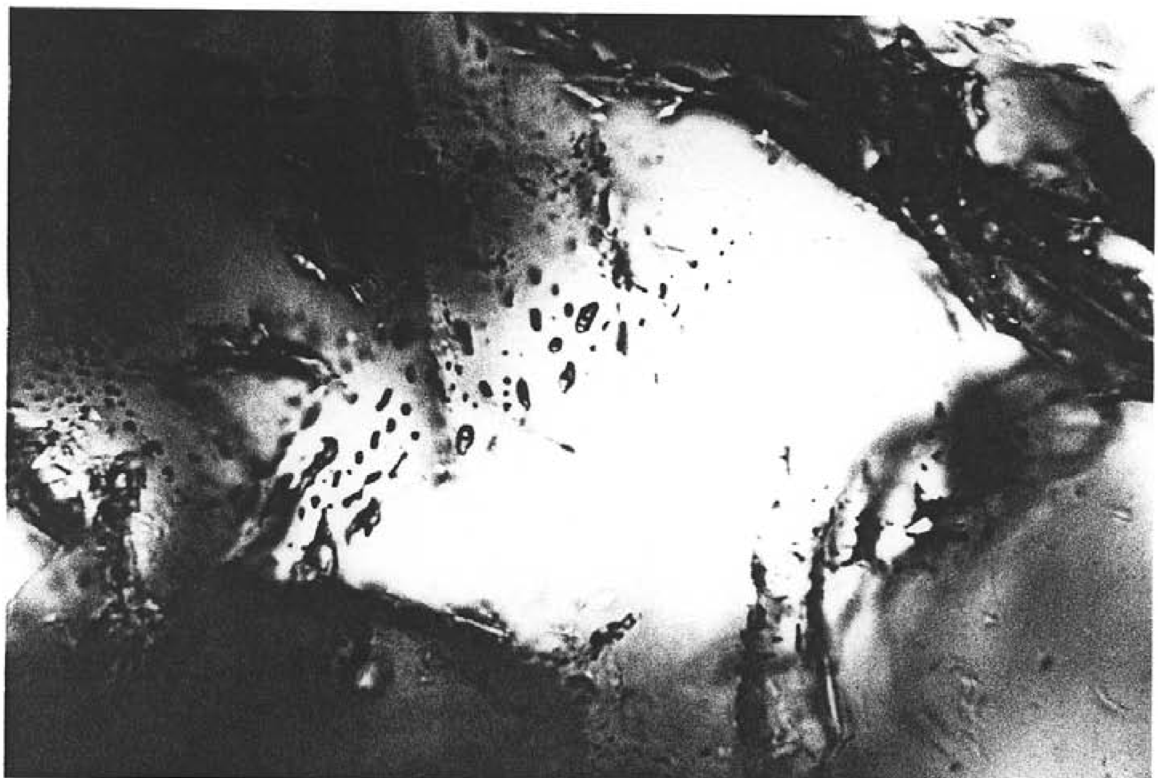


PLATE 10 (Dunne, 1992)

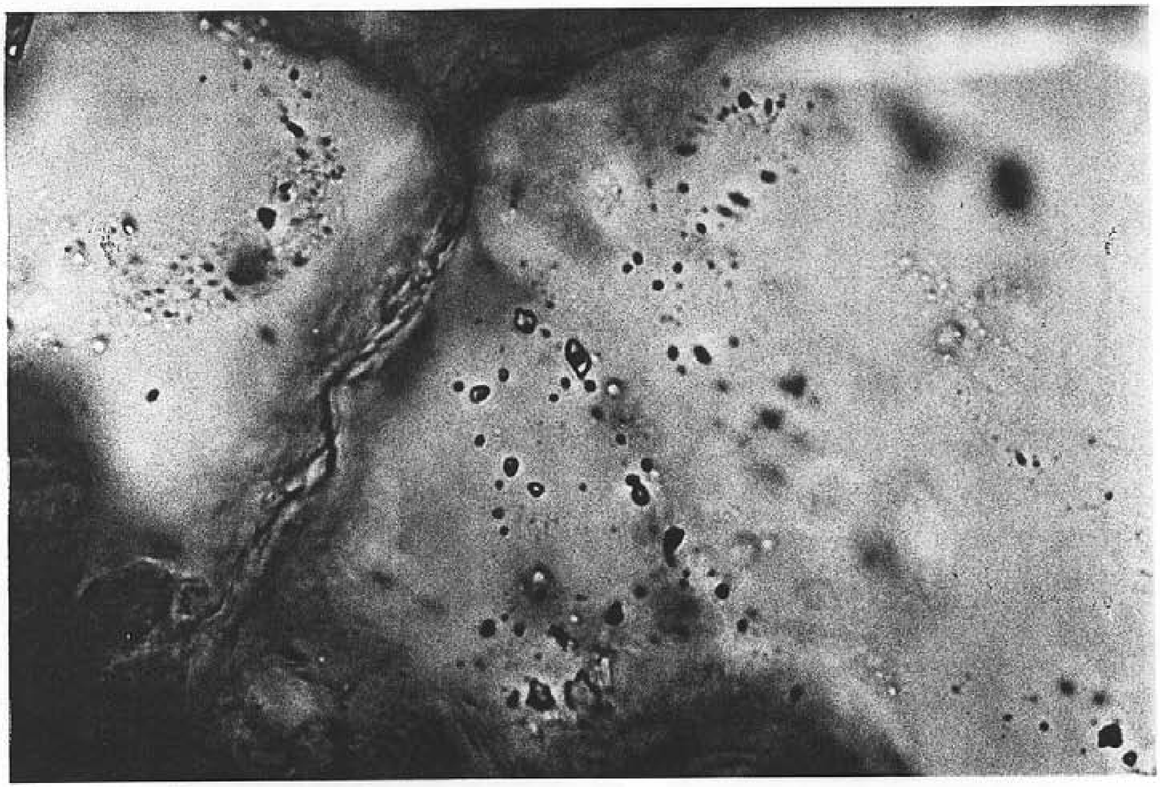
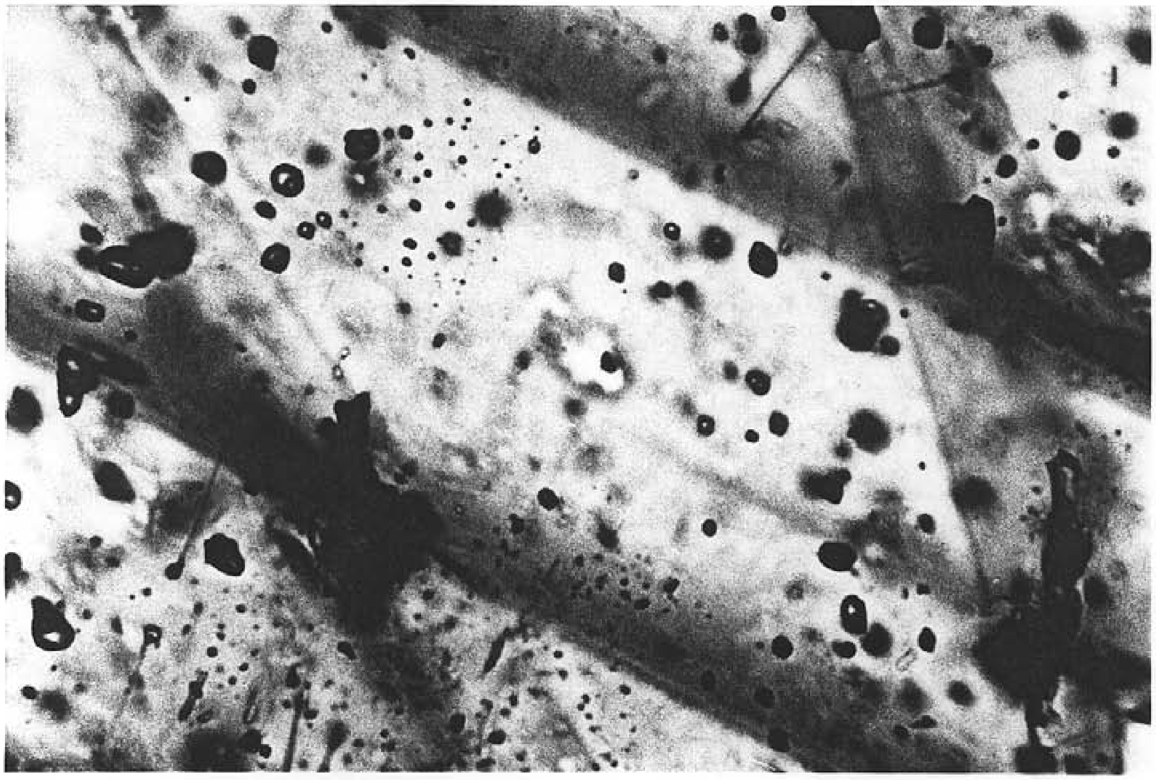


PLATE 11 (Dunne, 1992)

PLATE 12 (Dunne, 1992)



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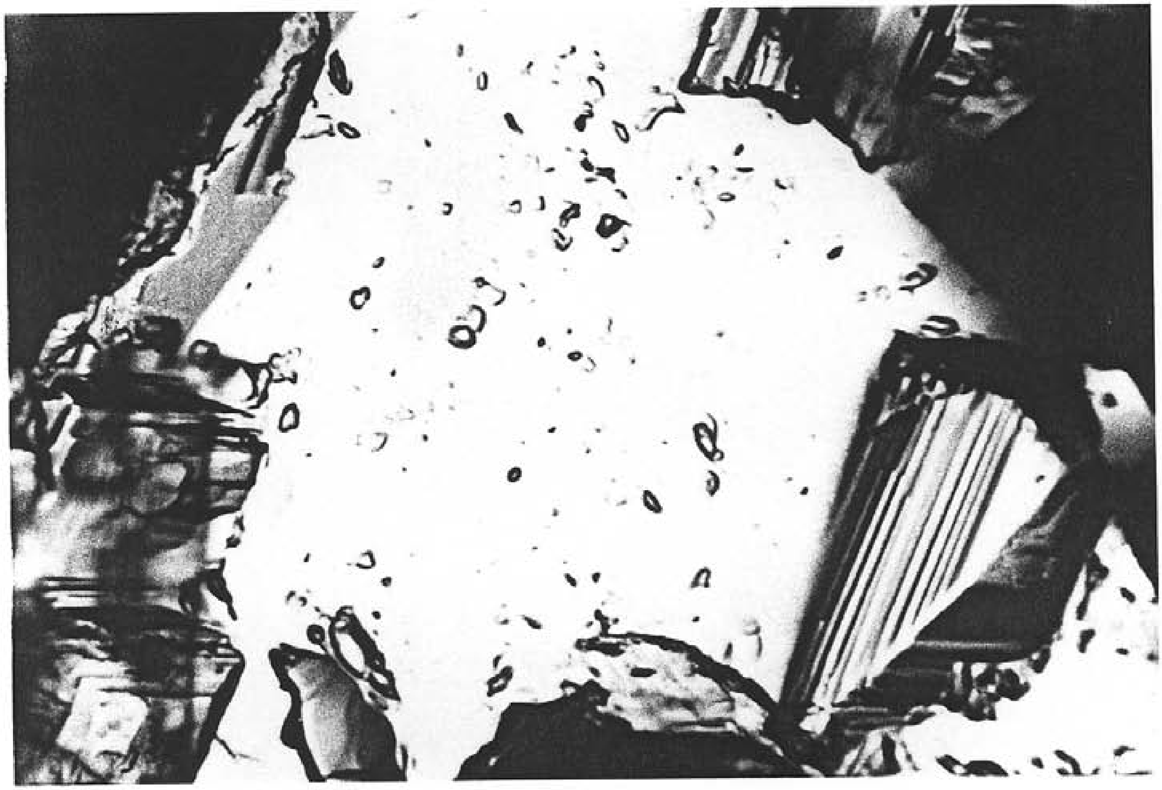

PLATE 14 (Dunne, 1992)

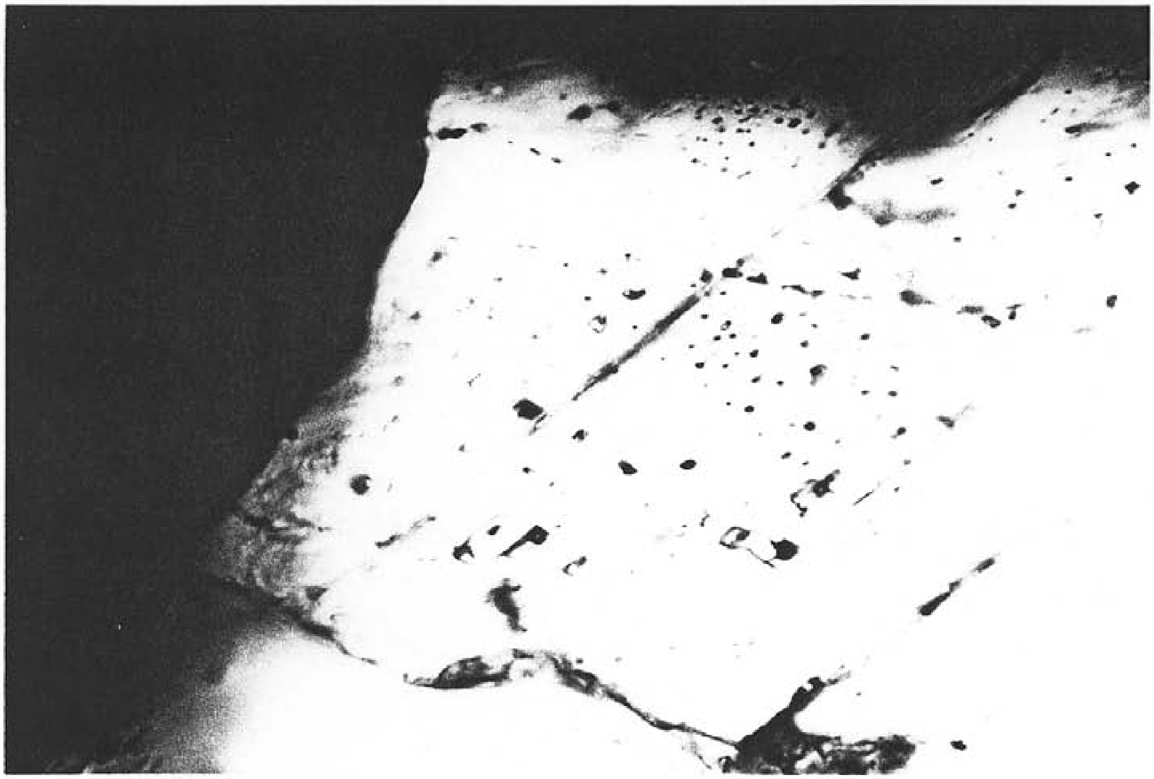

PLATE 15 (Dunne, 1992)

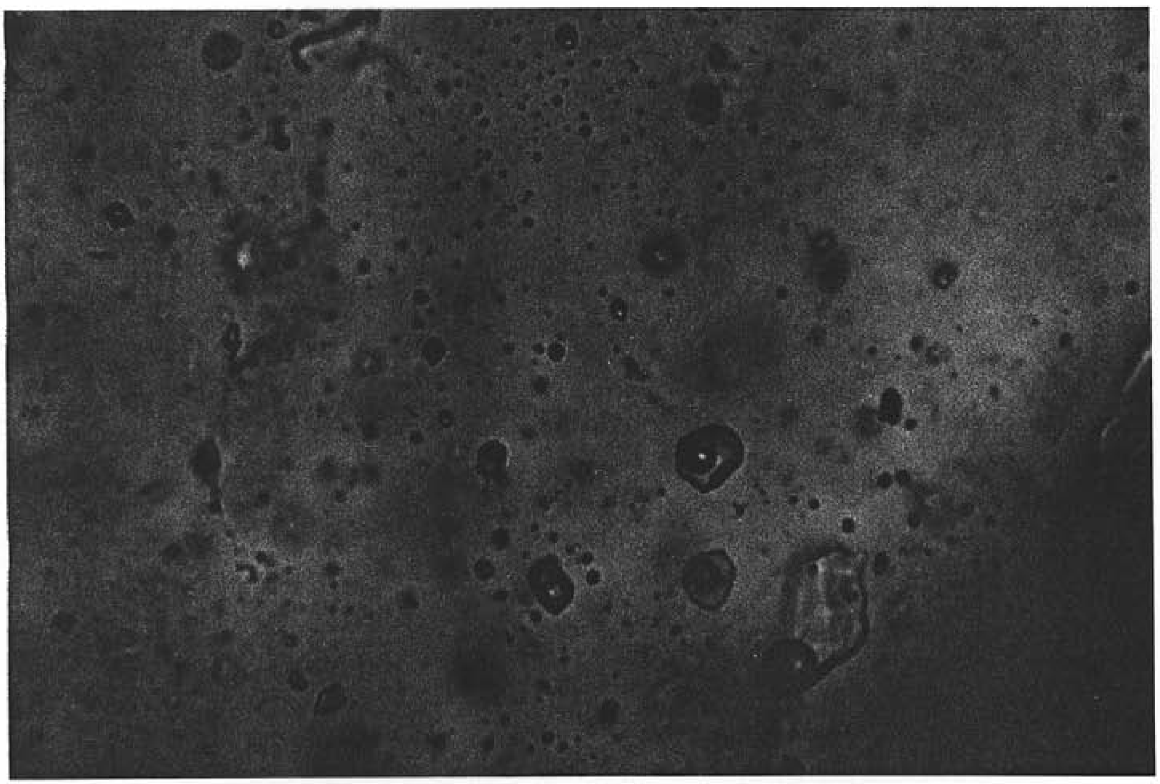

PLATE 16 (Dunne, 1992)

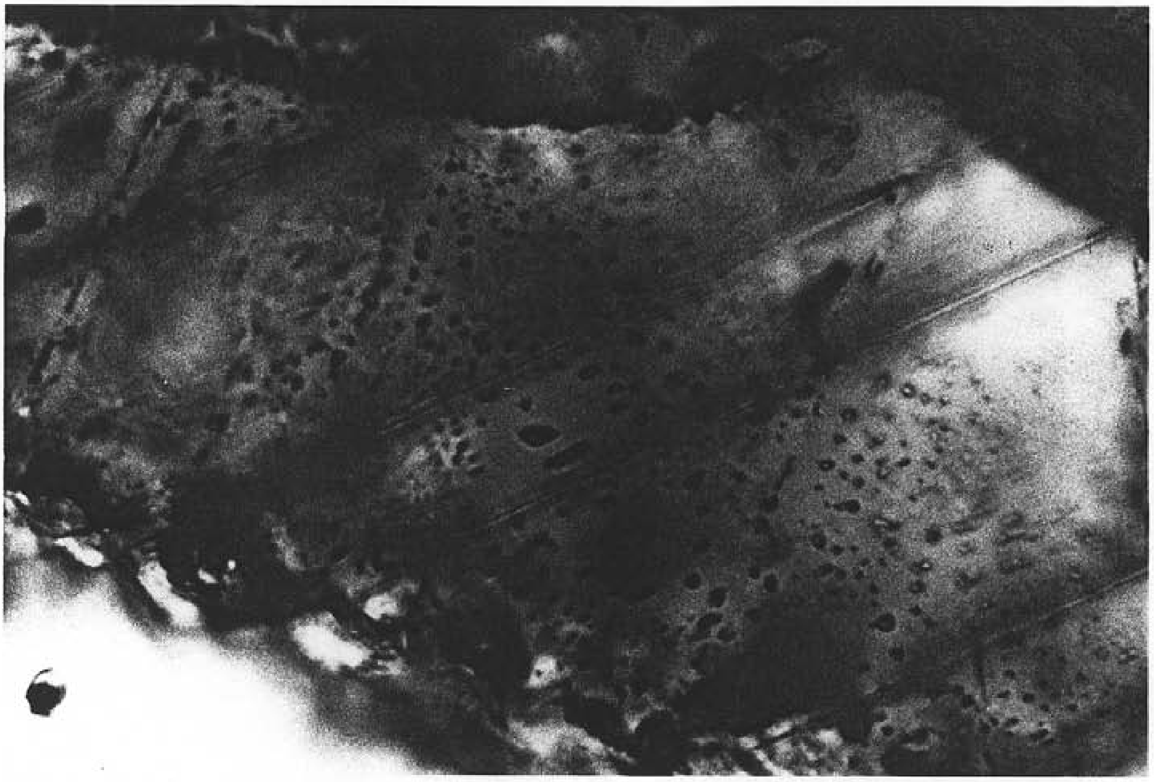

PLATE 17 (Dunne, 1992)

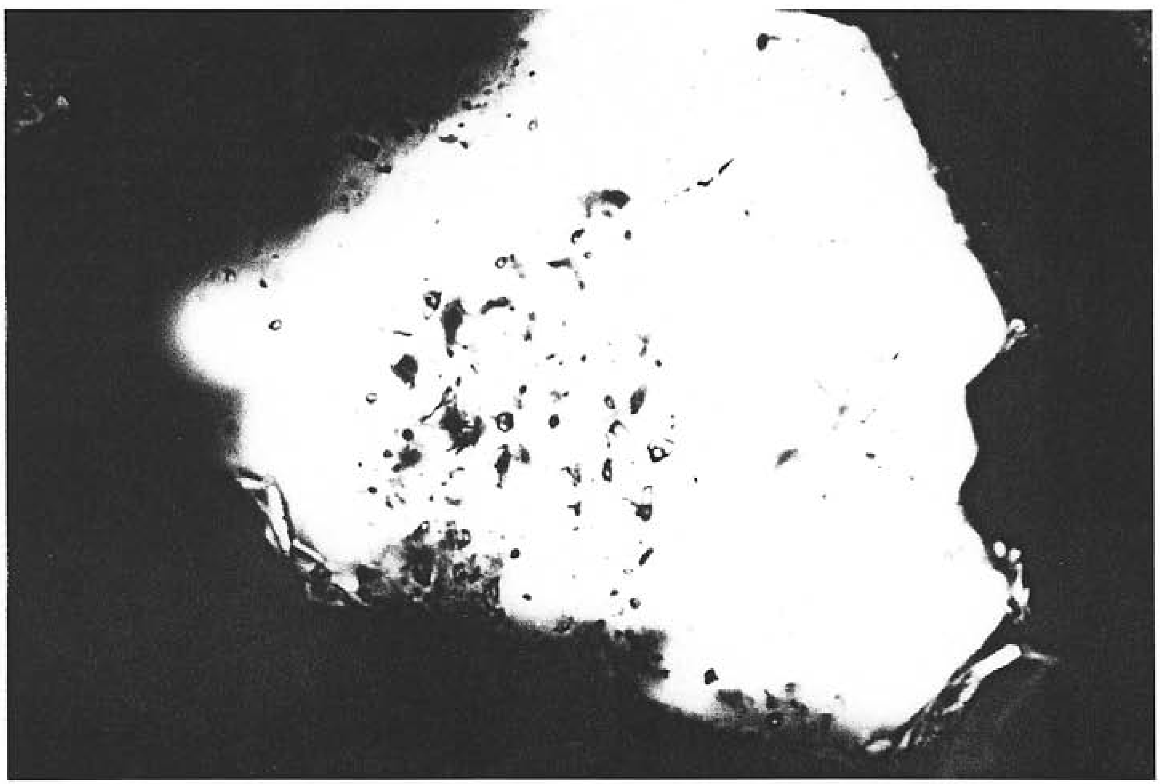

PLATE 18 (Dunne, 1992)

PLATE 19 (Dunne, 1992)

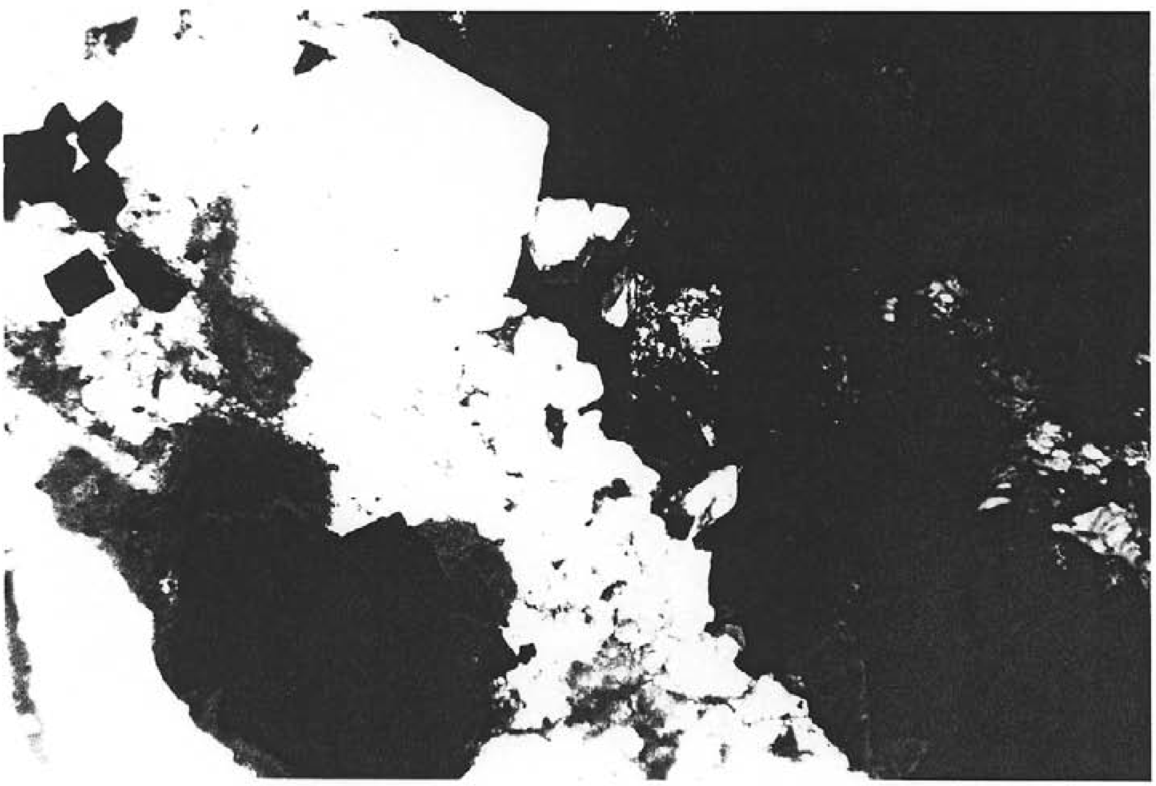

PLATE 20 (Dunne, 1992)

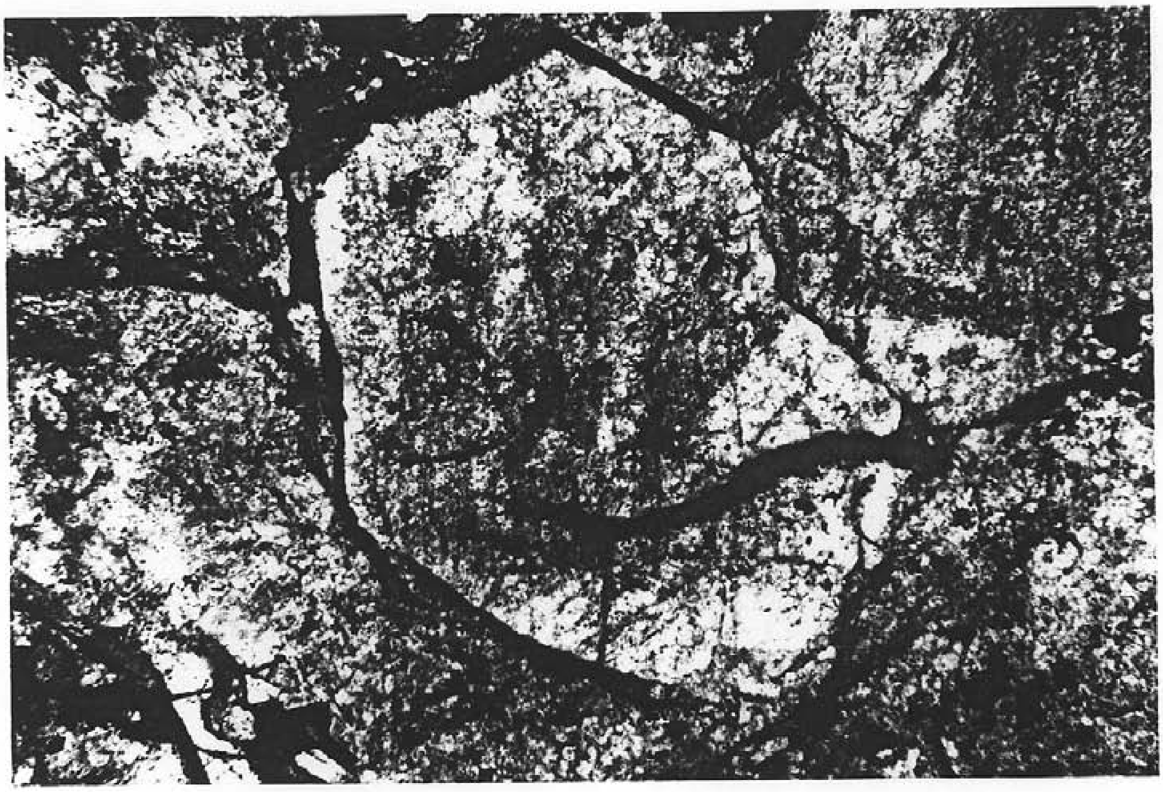
PLATE 21 (Dunne, 1992)

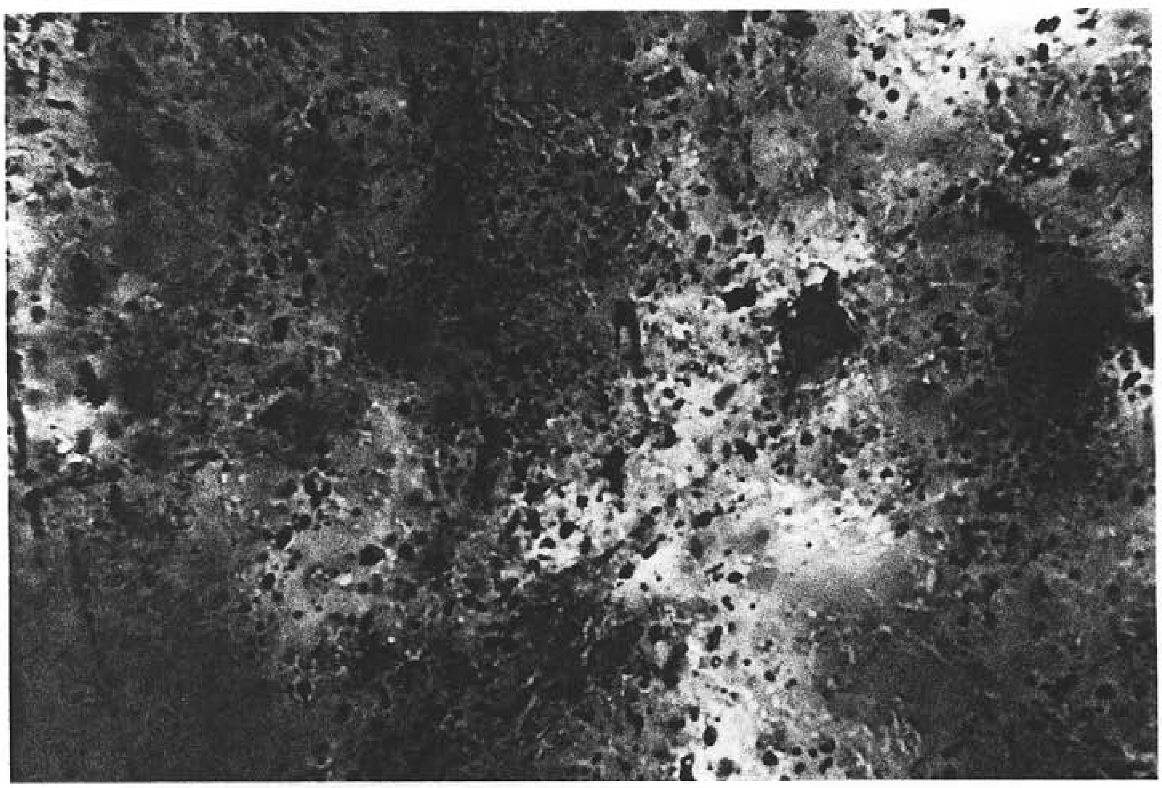
PLATE 22 (Dunne, 1992)

PLATE 23 (Dunne, 1992)

PLATE 24 (Dunne, 1992)

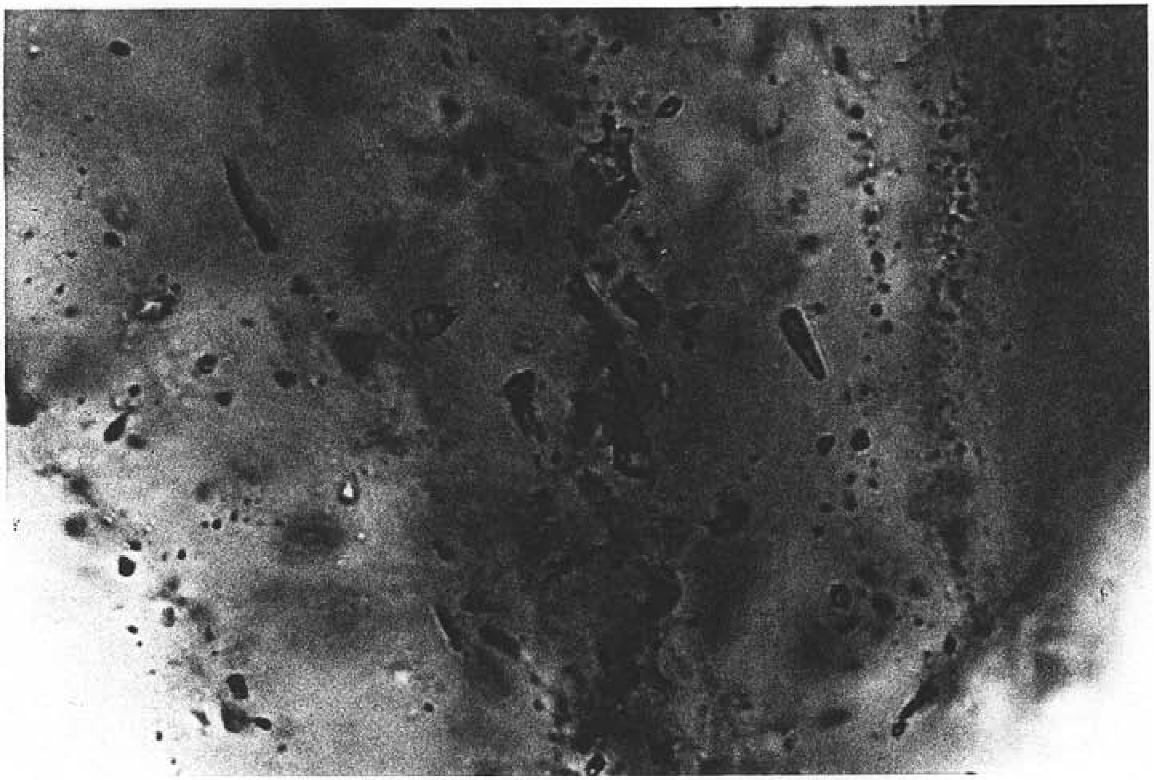

PLATE 25 (Dunne, 1992)

PLATE 26 (Dunne, 1992)

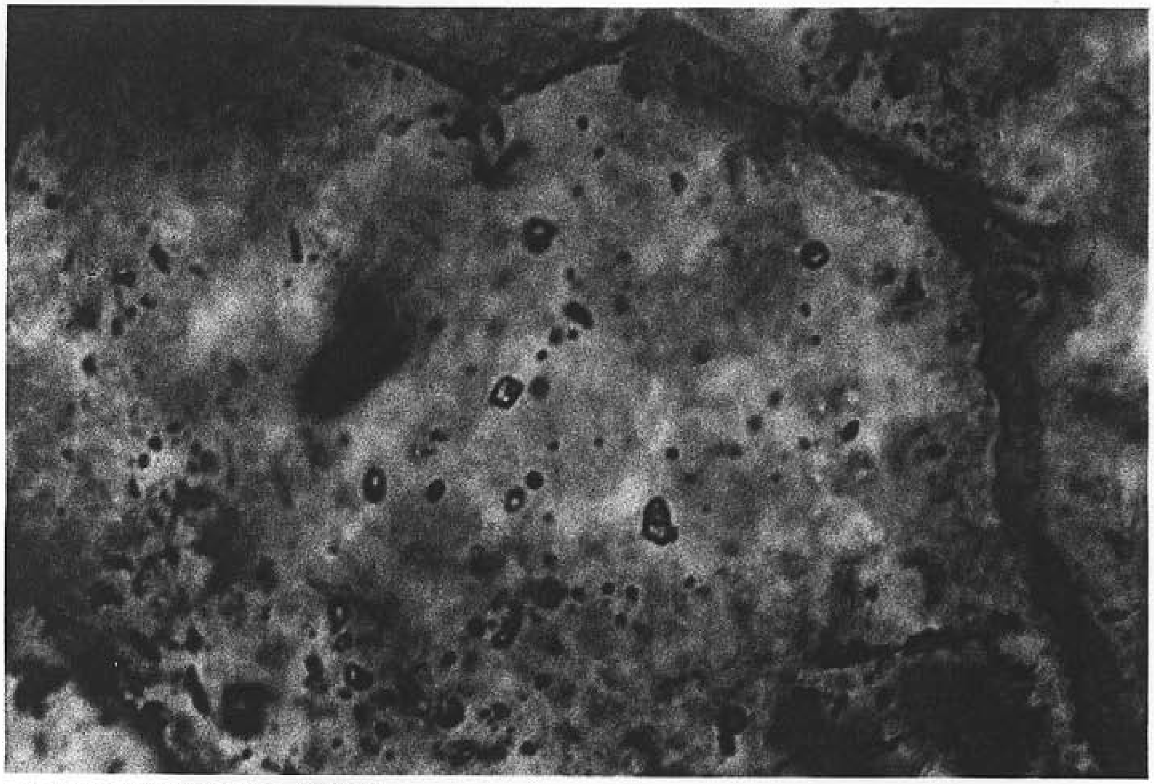

PLATE 27 (Dunne, 1992)

APPENDIX 8

ELECTRON PROBE MICROANALYSES

ELECTRON PROBE MICROANALYSES

Tor Bruland, Project Geologist
TECK MINING GROUP LIMITED
Suite 600, 200 Burrard Street
Vancouver, B.C. V6C 3L9

Mati Raudsepp

Mati Raudsepp, Ph.D.
October 30, 1992.

EXPERIMENTAL METHOD

The chemical compositions of individual garnet, pyroxene, amphibole and epidote grains from four thin sections were determined by electron probe microanalysis. Each grain was classified according to conventional mineralogical criteria (outlined below). Electron probe microanalyses were done on a fully-automated CAMECA SX-50 microprobe, operating in the wavelength-dispersive mode with the following operating conditions: excitation voltage, 15 *KV*; beam current, 20 *nA*; peak count time, 20 s; background count time, 10 s; beam diameter, 2 μm. The following standards and crystals were used for $K\alpha$ X-ray lines: Si, Mg, diopside, TAP; Ca, diopside, PET; Al, grossular, TAP; Fe, aegirine-augite, LIF; Na, aegirine-augite, TAP; Mn, pyroxmangite, LIF; potassium, orthoclase, PET; Ti, rutile, PET; Cr, chromite, LIF; F, phlogopite, TAP. Vanadium was checked for, but not detected. Analysis spots were recorded on photographs of backscattered electron images. Data reduction was done with the 'PAP' $\phi(\rho Z)$ method. Results are given in Tables 1-4 (mineral names), and the Appendix (instrument hard-copy; structural formula calculations; disk in LOTUS 1-2-3 format, element weight percent and atomic percent; photographs of backscattered electron images with analysis spot locations).

MINERAL CLASSIFICATION CRITERIA

Amphiboles

The general amphibole formula is : $A_{0\text{-}1}B_2C_5T_8O_{22}(OH,F,Cl)_2$, where A = K, Na; B = Na, Ca, Mg, Fe^{2+}, Mn; C = Mg, Fe^{2+},Fe^{3+}, Mn, Al, Cr, Ti; T = Si, Al. For a summary of site assignments and classification, see Hawthorne (1983). Electron probe microanalyses are incapable of distinguishing between Fe^{2+} and Fe^{3+}, and mineral analyses must be recast into structural formulae based on what is known about site occupancies from crystallographic studies. As oxygen and hydrogen are not analyzed, such recalculations are tenuous at best for amphiboles. Additional complications result from possible vacancies in the amphibole A-site. Amphiboles were named according to the classification of Leake (1978) (summarized in Hawthorne, 1983). Note that in some cases, the amphibole name depends on the method of Fe^{2+} and Fe^{3+} calculation. Amphibole names are summarize in Table 1.

Pyroxenes

The general pyroxene formula is XYZ_2O_6, where X = Ca, Mn, Fe^{2+}, Mg, Na; Y = Mn, Fe^{2+}, Mg, Fe^{3+}, Al, Cr, Ti; Z = Si, Al. Pyroxene structural formulae were calculated on the basis of 4 cations and 6 oxygens. As the analyses must total 100%, the calculation of Fe^{3+} may be done from charge balance. Pyroxenes were named according to the classification of Morimoto *et al.* (1988), and are listed in Table 2. All pyroxenes analyzed in this study are typical quadrilateral (calcic) pyroxenes, namely diopside, with Fe/(Fe + Mg) ratios varying between about 0.1 and 0.4 atoms per formula unit.

Garnets

The general garnet formula is $X_3Y_2Z_3O_{12}$ where X = Ca, Mg. Fe^{2+}, Mn; Y = Al, Fe^{3+}, Cr, Ti; Z = Si, Al. Note that the analysis totals are low (about 96%), but this is the result of using all Fe as Fe^{2+} for the reduction of the microprobe data (oxygen is underestimated). Recalculating the oxygen for Fe as Fe^{3+} brings the totals to over 99%. Structural formula calculations were done based on 8 cations and assuming that all Fe is Fe^{3+}. All analyses (Table 3) except one (B4-2) are andradites (Y = $2Fe^{3+}$). Sample B4-2 is grossular (Y = 1.88 Al). This sample is noteworthy, as it contains two distinct populations of garnets.

Epidote-group Minerals

The general formulae are $Ca_2Al_3Si_3O_{12}(OH)$ and $Ca_2Fe^{3+}Al_2Si_3O_{12}(OH)$ for clinozoisite and epidote, respectively. Structural formulae were calculated on the basis of 8 cations and assuming that all Fe is Fe^{3+}. Epidote-group mineral names are listed in Table 4. Clinozoisite was distinguished from epidote on the basis of containing less than 0.5 Fe atoms per formula unit.

REFERENCES

Hawthorne, F.C. (1983). The crystal chemistry of the amphiboles. *Canadian Mineralogist*, **21**, 173-480

Leake, B.E. (1978). Nomenclature of amphiboles. *Canadian Mineralogist*, 16, 501-520.

Morimoto, N. *et al.* (1988). Nomenclature of pyroxenes. *American Mineralogist*, 73, 1123-1133.

Table 1: Amphibole names.

Analysis No.	Name
Section 54013	
B2-1 ACT	Ferro-actinolite
B2-2 ACT	Ferro-actinolite
B2-3 ACT	Ferro-actinolite
B2-4 ACT	Ferro-actinolite
B3-1 ACT	Ferro-actinolite
B3-2 ACT	Ferro-actinolite
Section 544145	
T1-1 ACT	Ferroan-pargasite
T1-2 ACT	Ferroan-pargasite
T1-3 ACT	Ferroan-pargasite
T2-1 ACT	Ferroan-pargasite
T2-2 ACT	Ferroan-pargasite
T2-3 ACT	Ferroan-pargasite
T3-1 ACT	Ferroan-pargasite
T3-2 ACT	Ferroan-pargasite
Section 128544	
A1-1 AMP	Ferro-actinolite
A1-2 AMP	Ferro-actinolite
A1-3 AMP	Ferro-actinolite
A3-1 AMP	Ferro-actinolite
A3-2 AMP	Ferro-actinolite
Section 54014	
C2-2 AMP	Ferroan pargasitic hornblende

Table 2: Pyroxene names.

Analysis No.	Name	
Section 54013		
B4-1 DIOP	Diopside	Fe/(Fe + Mg) ≈ 0.1
B4-3 DIOP	Diopside	
B4-4 DIOP	Diopside	
B4-5 DIOP	Diopside	
Section 544145		
T5-1 DIOP	Diopside	Fe/(Fe + Mg) ≈ 0.3
T5-2 DIOP	Diopside	
T5-3 DIOP	Diopside	
T5-4 DIOP	Diopside	
Section 128544		
A2-1 DIOP	Diopside	Fe/(Fe + Mg) ≈ 0.4
A2-2 DIOP	Diopside	
A2-3 DIOP	Diopside	
A2-4 DIOP	Diopside	
Section 54014		
C1-1 DIOP?	Diopside	Fe/(Fe + Mg) ≈ 0.4
C1-2 DIOP?	Diopside	
C1-3 DIOP?	Diopside	
C1-4 DIOP?	Diopside	
C2-1 DIOP	Diopside	
C5-1 DIOP	Diopside	
C5-2 DIOP	Diopside	
C2-3 AMP	Diopside	
C3-1 AMP	Diopside	
C3-2 AMP	Diopside	

Table 3: Garnet names.

Analysis No.	Name
Section 54013	
B1-1 GAR	Andradite
B1-2 GAR	Andradite
B1-3 GAR	Andradite
B1-4 GAR	Andradite
B2-5 GAR	Andradite
B2-6 GAR	Andradite
B2-7 GAR	Andradite
B3-3 DIOP?	Andradite
B3-4 DIOP?	Andradite
B4-2 DIOP	Grossular
B4-6 GAR	Andradite
B4-7 GAR	Andradite
B4-8 GAR	Andradite

Table 4: Epidote-group mineral names.

Analysis No.	Name
Section 128544	
A1-4 UNK	Epidote
A2-5 EPID	Clinozoisite
A3-3 EPI?	Epidote
Section 54014	
C4-1 EPI	Clinozoisite

APPENDIX

1. Amphibole formula calculations.
2. Pyroxene formula calculations.
3. Garnet formula calculations.
4. Epidote formula calculations.
5. Hard-copy of analyses from microprobe.
6. Disk with element weight percent and atomic percent (envelope).
7. Backscattered electron images with analysis spot locations (envelope).
8. Photocopy of thin sections with general analysis areas marked.

AMPHIBOLES

Sample B2-1

SiO2	48.57
TiO2	0.05
Al2O3	1.46
Cr2O3	0.01
FeO	26.66
MnO	2.83
MgO	4.44
CaO	11.37
Na2O	0.16
K2O	0.10
Cl	0.00
F	0.01
Total	95.66
-O=Cl,F	0.00
Total	95.66

	Fe2+	15-NK	15-K	13-CNK	AV(2-4)
TSi	7.784	7.764	7.739	7.733	7.749
TAl	0.216	0.236	0.261	0.267	0.251
TFe3+	0.000	0.000	0.000	0.000	0.000
TTi	0.000	0.000	0.000	0.000	0.000
SUM IN T	8.000	8.000	8.000	8.000	8.000
CAl	0.060	0.040	0.013	0.007	0.024
CCr	0.001	0.001	0.001	0.001	0.001
CFe3+	0.000	0.112	0.264	0.297	0.205
CTi	0.006	0.006	0.006	0.006	0.006
CMg	1.060	1.058	1.054	1.054	1.056
CFe2+	3.573	3.452	3.289	3.253	3.353
CMn	0.300	0.331	0.373	0.382	0.356
CCa	0.000	0.000	0.000	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.000	0.000	0.000	0.000	0.000
BMn	0.085	0.052	0.009	0.000	0.026
BCa	1.915	1.948	1.941	1.940	1.944
BNa	0.000	0.000	0.049	0.049	0.025
SUM IN B	2.000	2.000	2.000	1.989	1.995
ACa	0.037	0.000	0.000	0.000	0.000
ANa	0.050	0.050	0.000	0.000	0.025
AK	0.020	0.020	0.020	0.020	0.020
SUM IN A	0.107	0.070	0.020	0.020	0.045
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.005	0.005	0.005	0.005	0.005
SUM CATS	15.107	15.070	15.020	15.009	15.040
SUM OXY	23.000	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
15-K	Calcic	Ferro-Actinolite
13-CNK	Calcic	Ferro-Actinolite
AV. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample B2-2

SiO2	47.32
TiO2	0.01
Al2O3	1.80
Cr2O3	0.00
FeO	27.30
MnO	2.82
MgO	4.60
CaO	11.52
Na2O	0.14
K2O	0.12
Cl	0.00
F	0.00
Total	95.63
-O=Cl,F	0.00
Total	95.63

	Fe2+	15-NK	15-K	13-CNK	AV(2-4)
TSi	7.639	7.561	7.540	7.546	7.554
TAl	0.343	0.339	0.338	0.339	0.339
TFe3+	0.000	0.099	0.122	0.116	0.108
TTi	0.001	0.000	0.000	0.000	0.000
SUM IN T	7.983	8.000	8.000	8.000	8.000
CAl	0.000	0.000	0.000	0.000	0.000
CCr	0.000	0.000	0.000	0.000	0.000
CFe3+	0.000	0.368	0.477	0.448	0.408
CTi	0.000	0.001	0.001	0.001	0.001
CMg	1.107	1.095	1.092	1.093	1.094
CFe2+	3.686	3.181	3.039	3.077	3.129
CMn	0.207	0.354	0.381	0.381	0.368
CCa	0.000	0.000	0.010	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.000	0.000	0.000	0.000	0.000
BMn	0.178	0.028	0.000	0.000	0.014
BCa	1.822	1.972	1.957	1.968	1.970
BNa	0.000	0.000	0.043	0.032	0.016
SUM IN B	2.000	2.000	2.000	2.000	2.000
ACa	0.171	0.000	0.000	0.000	0.000
ANa	0.044	0.043	0.000	0.012	0.027
AK	0.025	0.024	0.024	0.024	0.024
SUM IN A	0.240	0.068	0.024	0.036	0.052
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.000	0.000	0.000	0.000	0.000
SUM CATS	15.223	15.068	15.024	15.036	15.052
SUM OXY	23.000	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
15-K	Calcic	Ferro-Actinolite
13-CNK	Calcic	Ferro-Actinolite
AV. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample b2-3 ✓

SiO2	47.96
TiO2	0.04
Al2O3	1.80
Cr2O3	0.00
FeO	27.30
MnO	2.82
MgO	4.60
CaO	11.52
Na2O	0.14
K2O	0.12
Cl	0.00
F	0.00
Total	96.30
-O=Cl,F	0.00
Total	96.30

	Fe2+	15-NK	15-K	13-CNK	AV(2-4)
TSi	7.671	7.610	7.588	7.586	7.598
TAl	0.329	0.337	0.336	0.336	0.336
TFe3+	0.000	0.053	0.076	0.078	0.066
TTi	0.000	0.000	0.000	0.000	0.000
SUM IN T	8.000	8.000	8.000	8.000	8.000
CAl	0.011	0.000	0.000	0.000	0.000
CCr	0.000	0.000	0.000	0.000	0.000
CFe3+	0.000	0.313	0.421	0.433	0.373
CTi	0.005	0.005	0.005	0.005	0.005
CMg	1.097	1.088	1.085	1.084	1.086
CFe2+	3.652	3.257	3.116	3.101	3.179
CMn	0.236	0.338	0.374	0.378	0.358
CCa	0.000	0.000	0.000	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.000	0.000	0.000	0.000	0.000
BMn	0.146	0.041	0.004	0.000	0.021
BCa	1.854	1.959	1.953	1.952	1.956
BNa	0.000	0.000	0.043	0.043	0.021
SUM IN B	2.000	2.000	2.000	1.995	1.998
ACa	0.121	0.000	0.000	0.000	0.000
ANa	0.043	0.043	0.000	0.000	0.022
AK	0.024	0.024	0.024	0.024	0.024
SUM IN A	0.188	0.067	0.024	0.024	0.046
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.000	0.000	0.000	0.000	0.000
SUM CATS	15.188	15.067	15.024	15.020	15.043
SUM OXY	23.000	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
15-K	Calcic	Ferro-Actinolite
13-CNK	Calcic	Ferro-Actinolite
AV. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample B2-4 ✓

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
SiO2	48.91	TSi	7.734	7.670	7.646	7.924	7.797
TiO2	0.00	TAl	0.218	0.216	0.216	0.076	0.146
l2O3	1.17	TFe3+	0.000	0.113	0.139	0.000	0.057
r2O3	0.02	TTi	0.000	0.000	0.000	0.000	0.000
FeO	24.03	SUM IN T	7.952	8.000	8.000	8.000	8.000
MnO	3.50	CAl	0.000	0.000	0.000	0.148	0.074
gO	4.61	CCr	0.003	0.002	0.002	0.003	0.003
CaO	14.38	CFe3+	0.000	0.264	0.386	0.000	0.132
Na2O	0.16	CTi	0.000	0.000	0.000	0.000	0.000
2O	0.07	CMg	1.086	1.077	1.074	1.113	1.095
Cl	0.00	CFe2+	3.178	2.774	2.617	3.256	3.015
F	0.09	CMn	0.469	0.465	0.463	0.480	0.473
otal	96.94	CCa	0.264	0.416	0.457	0.000	0.208
O=Cl,F	0.04	SUM IN C	5.000	5.000	5.000	5.000	5.000
Total	96.90	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.000	0.000	0.000	0.000	0.000
		BMn	0.000	0.000	0.000	0.000	0.000
		BCa	2.000	2.000	1.952	2.000	2.000
		BNa	0.000	0.000	0.048	0.000	0.000
		SUM IN B	2.000	2.000	2.000	2.000	2.000
		ACa	0.172	0.000	0.000	0.496	0.248
		ANa	0.049	0.049	0.000	0.050	0.049
		AK	0.014	0.014	0.014	0.014	0.014
		SUM IN A	0.235	0.063	0.014	0.561	0.312
		CCl	0.000	0.000	0.000	0.000	0.000
		CF	0.045	0.045	0.044	0.046	0.045
		SUM CATS	15.187	15.063	15.014	15.561	15.312
		SUM OXY	23.000	23.000	23.000	23.566	23.283

ETHOD	GROUP	NAME
Fe2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
5-K	Calcic	Ferro-Actinolite
13-CNK	Calcic	Ferro-Actinolite
AV. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample B3-1 √

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
·iO2	49.45	TSi	7.751	7.737	7.703	7.659	7.698
TiO2	0.04	TAl	0.249	0.263	0.297	0.341	0.302
Al2O3	1.89	TFe3+	0.000	0.000	0.000	0.000	0.000
·r2O3	0.00	TTi	0.000	0.000	0.000	0.000	0.000
.'eO	24.63	SUM IN T	8.000	8.000	8.000	8.000	8.000
MnO	3.45	CAl	0.100	0.086	0.050	0.004	0.045
·gO	5.84	CCr	0.000	0.000	0.000	0.000	0.000
·aO	11.14	CFe3+	0.000	0.081	0.284	0.544	0.313
Na2O	0.22	CTi	0.005	0.005	0.005	0.005	0.005
K2O	0.10	CMg	1.364	1.362	1.356	1.348	1.355
·l	0.00	CFe2+	3.229	3.142	2.924	2.646	2.894
r'	0.08	CMn	0.302	0.325	0.381	0.453	0.389
Total	96.84	CCa	0.000	0.000	0.000	0.000	0.000
·O=Cl,F	0.03	SUM IN C	5.000	5.000	5.000	5.000	5.000
'otal	96.81	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.000	0.000	0.000	0.000	0.000
		BMn	0.156	0.132	0.074	0.000	0.066
		BCa	1.844	1.868	1.859	1.849	1.858
		BNa	0.000	0.000	0.066	0.066	0.033
		SUM IN B	2.000	2.000	2.000	1.915	1.957
		ACa	0.027	0.000	0.000	0.000	0.000
		ANa	0.067	0.067	0.000	0.000	0.033
		AK	0.020	0.020	0.020	0.020	0.020
		SUM IN A	0.114	0.087	0.020	0.020	0.053
		CCl	0.000	0.000	0.000	0.000	0.000
		CF	0.040	0.040	0.039	0.039	0.039
		SUM CATS	15.114	15.087	15.020	14.935	15.011
		SUM OXY	23.000	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
.'e2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
.5-K	Calcic	Ferro-Actinolite
.3-CNK	Calcic	Ferro-Actinolite
A' 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample B3-2 ✓

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
SiO2	49.01	TSi	7.715	7.696	7.661	7.603	7.649
TiO2	0.05	TAl	0.285	0.304	0.339	0.371	0.338
Al2O3	2.03	TFe3+	0.000	0.000	0.000	0.025	0.013
Cr2O3	0.00	TTi	0.000	0.000	0.000	0.000	0.000
FeO	24.67	SUM IN T	8.000	8.000	8.000	8.000	8.000
MnO	3.74	CAl	0.092	0.071	0.036	0.000	0.036
MgO	5.74	CCr	0.000	0.000	0.000	0.000	0.000
CaO	10.95	CFe3+	0.000	0.118	0.322	0.643	0.380
Na2O	0.22	CTi	0.006	0.006	0.006	0.006	0.006
K2O	0.18	CMg	1.347	1.343	1.337	1.327	1.335
Cl	0.00	CFe2+	3.248	3.122	2.903	2.533	2.827
F	0.00	CMn	0.307	0.340	0.396	0.491	0.416
Total	96.59	CCa	0.000	0.000	0.000	0.000	0.000
-O=Cl,F	0.00	SUM IN C	5.000	5.000	5.000	5.000	5.000
Total	96.59	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.000	0.000	0.000	0.000	0.000
		BMn	0.192	0.158	0.099	0.000	0.079
		BCa	1.808	1.842	1.834	1.820	1.831
		BNa	0.000	0.000	0.067	0.066	0.033
		SUM IN B	2.000	2.000	2.000	1.886	1.943
		ACa	0.039	0.000	0.000	0.000	0.000
		ANa	0.067	0.067	0.000	0.000	0.033
		AK	0.036	0.036	0.036	0.036	0.036
		SUM IN A	0.142	0.103	0.036	0.036	0.069
		CCl	0.000	0.000	0.000	0.000	0.000
		CF	0.000	0.000	0.000	0.000	0.000
		SUM CATS	15.142	15.103	15.036	14.922	15.013
		SUM OXY	23.000	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
15-K	Calcic	Ferro-Actinolite

13-CNK	Calcic	Ferro-Actinolite
AV. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample T1-1

SiO2	38.38
TiO2	1.00
Al2O3	18.26
Cr2O3	0.00
FeO	12.63
MnO	0.25
MgO	9.80
CaO	11.99
Na2O	1.72
K2O	1.58
Cl	0.00
F	0.12
Total	95.73
-O=Cl,F	0.05
Total	95.68

	Fe2+	15-NK	15-K	13-CNK	AV(2-4)
TSi	5.828	5.821	5.631	5.798	5.810
TAl	2.172	2.179	2.369	2.202	2.190
TFe3+	0.000	0.000	0.000	0.000	0.000
TTi	0.000	0.000	0.000	0.000	0.000
SUM IN T	8.000	8.000	8.000	8.000	8.000
CAl	1.099	1.088	0.791	1.052	1.070
CCr	0.000	0.000	0.000	0.000	0.000
CFe3+	0.000	0.051	1.550	0.232	0.142
CTi	0.114	0.114	0.110	0.114	0.114
CMg	2.218	2.215	2.143	2.206	2.211
CFe2+	1.569	1.532	0.000	1.364	1.448
CMn	0.000	0.000	0.031	0.032	0.016
CCa	0.000	0.000	0.374	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.035	0.019	0.000	0.000	0.010
BMn	0.032	0.032	0.000	0.000	0.016
BCa	1.933	1.949	1.511	1.941	1.945
BNa	0.000	0.000	0.489	0.059	0.030
SUM IN B	2.000	2.000	2.000	2.000	2.000
ACa	0.018	0.000	0.000	0.000	0.000
ANa	0.506	0.506	0.000	0.445	0.475
AK	0.306	0.306	0.296	0.305	0.305
SUM IN A	0.831	0.812	0.296	0.749	0.780
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.058	0.058	0.056	0.057	0.057
SUM CATS	15.831	15.812	15.296	15.749	15.780
SUM OXY	23.002	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
e2+	Calcic	Ferroan Pargasite
: NK	Calcic	Ferroan Pargasite
1. -K	Calcic	
3-CNK	Calcic	Ferroan Pargasite
..V. 15-NK & 13-CNK	Calcic	Ferroan Pargasite

ample T1-2 √

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
SiO2	39.56	TSi	5.915	5.909	5.708	5.870	5.890
TiO2	0.80	TAl	2.085	2.091	2.292	2.130	2.110
.l2O3	18.07	TFe3+	0.000	0.000	0.000	0.000	0.000
.r2O3	0.02	TTi	0.000	0.000	0.000	0.000	0.000
FeO	12.46	SUM IN T	8.000	8.000	8.000	8.000	8.000
lnO	0.20	CAl	1.102	1.093	0.783	1.033	1.063
lgO	10.42	CCr	0.002	0.002	0.002	0.002	0.002
CaO	11.95	CFe3+	0.000	0.041	1.504	0.348	0.194
'la2O	1.83	CTi	0.090	0.090	0.087	0.089	0.090
:2O	1.28	CMg	2.322	2.320	2.241	2.304	2.312
Cl	0.00	CFe2+	1.483	1.454	0.000	1.199	1.326
F	0.13	CMn	0.000	0.000	0.024	0.025	0.013
'otal	96.72	CCa	0.000	0.000	0.359	0.000	0.000
-O=Cl,F	0.05	SUM IN C	5.000	5.000	5.000	5.000	5.000
Total	96.67	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.075	0.062	0.000	0.000	0.031
		BMn	0.025	0.025	0.000	0.000	0.013
		BCa	1.900	1.913	1.488	1.900	1.906
		BNa	0.000	0.000	0.512	0.100	0.050
		SUM IN B	2.000	2.000	2.000	2.000	2.000
		ACa	0.015	0.000	0.000	0.000	0.000
		ANa	0.531	0.530	0.000	0.427	0.478

AK	0.244	0.244	0.236	0.242	0.243
SUM IN A	0.790	0.774	0.236	0.669	0.721
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.061	0.061	0.059	0.061	0.061
SUM CATS	15.790	15.774	15.236	15.669	15.721
SUM OXY	23.002	23.000	22.947	23.000	23.000

..ETHOD	GROUP	NAME
e2+	Calcic	Ferroan Pargasite
5-NK	Calcic	Ferroan Pargasite
15-K	Calcic	
13-CNK	Calcic	Ferroan Pargasite
V. 15-NK & 13-CNK	Calcic	Ferroan Pargasite

Sample T1-3 ✓

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
iO2	38.68	TSi	5.847	5.836	5.648	5.807	5.821
TiO2	0.82	TAl	2.153	2.164	2.352	2.193	2.179
Al2O3	18.40	TFe3+	0.000	0.000	0.000	0.000	0.000
r2O3	0.00	TTi	0.000	0.000	0.000	0.000	0.000
FeO	12.62	SUM IN T	8.000	8.000	8.000	8.000	8.000
MnO	0.16	CAl	1.127	1.110	0.816	1.065	1.088
gO	10.00	CCr	0.000	0.000	0.000	0.000	0.000
aO	11.97	CFe3+	0.000	0.081	1.541	0.309	0.195
Na2O	1.71	CTi	0.093	0.093	0.090	0.093	0.093
K2O	1.49	CMg	2.253	2.249	2.176	2.237	2.243
l	0.00	CFe2+	1.527	1.467	0.000	1.276	1.372
F	0.15	CMn	0.000	0.000	0.020	0.020	0.010
.al	96.00	CCa	0.000	0.000	0.357	0.000	0.000
O=Cl,F	0.06	SUM IN C	5.000	5.000	5.000	5.000	5.000
Total	95.94	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.069	0.044	0.000	0.000	0.022

BMn	0.020	0.020	0.000	0.000	0.010
BCa	1.911	1.935	1.516	1.926	1.930
BNa	0.000	0.000	0.484	0.074	0.037
SUM IN B	2.000	2.000	2.000	2.000	2.000
ACa	0.028	0.000	0.000	0.000	0.000
ANa	0.501	0.500	0.000	0.423	0.462
AK	0.287	0.287	0.278	0.285	0.286
SUM IN A	0.816	0.787	0.278	0.709	0.748
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.072	0.072	0.069	0.071	0.071
SUM CATS	15.816	15.787	15.278	15.709	15.748
SUM OXY	23.002	23.000	22.989	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferroan Pargasite
15-NK	Calcic	Ferroan Pargasite
15-K	Calcic	
13-CNK	Calcic	Ferroan Pargasite
AV. 15-NK & 13-CNK	Calcic	Ferroan Pargasite

Sample T2-1 ✓

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
SiO2	39.89	TSi	6.033	6.030	5.842	6.007	6.018
TiO2	0.91	TAl	1.967	1.970	2.158	1.993	1.982
Al2O3	16.57	TFe3+	0.000	0.000	0.000	0.000	0.000
Cr2O3	0.00	TTi	0.000	0.000	0.000	0.000	0.000
FeO	13.83	SUM IN T	8.000	8.000	8.000	8.000	8.000
MnO	0.24	CAl	0.989	0.984	0.704	0.950	0.967
MgO	9.69	CCr	0.000	0.000	0.000	0.000	0.000
CaO	12.04	CFe3+	0.000	0.021	1.458	0.197	0.109
Na2O	1.65	CTi	0.104	0.103	0.100	0.103	0.103
K2O	1.42	CMg	2.184	2.183	2.115	2.175	2.179

l	0.00	CFe2+	1.723	1.708	0.236	1.545	1.626
F	0.19	CMn	0.000	0.000	0.030	0.031	0.015
otal	96.43	CCa	0.000	0.000	0.358	0.000	0.000
O=Cl,F	0.08	SUM IN C	5.000	5.000	5.000	5.000	5.000
al	96.35	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.026	0.019	0.000	0.000	0.010
		BMn	0.031	0.031	0.000	0.000	0.015
		BCa	1.943	1.950	1.531	1.943	1.946
		BNa	0.000	0.000	0.469	0.057	0.029
		SUM IN B	2.000	2.000	2.000	2.000	2.000
		ACa	0.008	0.000	0.000	0.000	0.000
		ANa	0.484	0.484	0.000	0.424	0.454
		AK	0.274	0.274	0.265	0.273	0.273
		SUM IN A	0.766	0.757	0.265	0.697	0.727
		CCl	0.000	0.000	0.000	0.000	0.000
		CF	0.091	0.091	0.088	0.090	0.091
		SUM CATS	15.766	15.757	15.265	15.697	15.727
		SUM OXY	23.002	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferroan Pargasite
15-NK	Calcic	Ferroan Pargasite
.5-K	Calcic	Tschermakite
13-CNK	Calcic	Ferroan Pargasite
AV. 15-NK & 13-CNK	Calcic	Ferroan Pargasite

Sample T2-2 ✓

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
O2	40.64	TSi	6.128	6.126	5.932	6.078	6.102
TiO2	0.76	TAl	1.872	1.874	2.068	1.922	1.898
Al2O3	16.00	TFe3+	0.000	0.000	0.000	0.000	0.000
Cr2O3	0.00	TTi	0.000	0.000	0.000	0.000	0.000

eO	13.65
MnO	0.22
lgO	10.22
aO	11.76
O	1.67
K2O	1.21
l	0.00
	0.23
Total	96.36
-O=Cl,F	0.10
otal	96.26

SUM IN T	8.000	8.000	8.000	8.000	8.000
CAl	0.973	0.970	0.687	0.901	0.936
CCr	0.000	0.000	0.000	0.000	0.000
CFe3+	0.000	0.011	1.461	0.365	0.188
CTi	0.086	0.086	0.083	0.085	0.086
CMg	2.297	2.296	2.223	2.278	2.287
CFe2+	1.644	1.637	0.206	1.343	1.490
CMn	0.000	0.000	0.027	0.028	0.014
CCa	0.000	0.000	0.312	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.077	0.073	0.000	0.000	0.036
BMn	0.028	0.028	0.000	0.000	0.014
BCa	1.895	1.899	1.527	1.885	1.892
BNa	0.000	0.000	0.473	0.115	0.058
SUM IN B	2.000	2.000	2.000	2.000	2.000
ACa	0.005	0.000	0.000	0.000	0.000
ANa	0.488	0.488	0.000	0.369	0.429
AK	0.233	0.233	0.225	0.231	0.232
SUM IN A	0.726	0.721	0.225	0.600	0.660
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.110	0.110	0.106	0.109	0.109
SUM CATS	15.726	15.721	15.225	15.600	15.660
SUM OXY	23.002	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
e2+	Calcic	Ferroan Pargasite
15-NK	Calcic	Ferroan Pargasite
15-K	Calcic	Tschermakite
13-CNK	Calcic	Ferroan Pargasite
AV. 15-NK & 13-CNK	Calcic	Ferroan Pargasite

ample T2-3 ✓

iO2	40.27
iO2	0.76
l O3	16.65
Cr2O3	0.00
eO	13.60
nO	0.24
MgO	9.63
aO	11.79
a2O	1.68
K2O	1.15
Cl	0.00
	0.21
otal	95.98
-O=Cl,F	0.09
otal	95.89

	Fe2+	15-NK	15-K	13-CNK	AV(2-4)
TSi	6.091	6.099	5.905	6.058	6.079
TAl	1.909	1.901	2.095	1.942	1.921
TFe3+	0.000	0.000	0.000	0.000	0.000
TTi	0.000	0.000	0.000	0.000	0.000
SUM IN T	8.000	8.000	8.000	8.000	8.000
CAl	1.062	1.073	0.784	1.013	1.043
CCr	0.000	0.000	0.000	0.000	0.000
CFe3+	0.000	0.000	1.406	0.244	0.122
CTi	0.086	0.087	0.084	0.086	0.086
CMg	2.171	2.174	2.104	2.159	2.166
CFe2+	1.681	1.667	0.262	1.467	1.567
CMn	0.000	0.000	0.030	0.031	0.015
CCa	0.000	0.000	0.330	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.040	0.056	0.000	0.000	0.028
BMn	0.031	0.031	0.000	0.000	0.015
BCa	1.911	1.913	1.522	1.901	1.907
BNa	0.018	0.000	0.478	0.099	0.050
SUM IN B	2.000	2.000	2.000	2.000	2.000
ACa	0.000	0.000	0.000	0.000	0.000
ANa	0.474	0.493	0.000	0.391	0.442
AK	0.222	0.222	0.215	0.221	0.221
SUM IN A	0.696	0.716	0.215	0.611	0.663
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.100	0.101	0.097	0.100	0.100
SUM CATS	15.696	15.716	15.215	15.611	15.663
SUM OXY	23.002	23.030	23.000	23.000	23.015

METHOD	GROUP	NAME
Fe2+	Calcic	Ferroan Pargasite
15-NK	Calcic	Ferroan Pargasite
15-K	Calcic	Tschermakite
13-CNK	Calcic	Ferroan Pargasite
AV. 15-NK & 13-CNK	Calcic	Ferroan Pargasite

Sample T3-1 ✓

SiO2	40.30
TiO2	0.84
Al2O3	15.88
Cr2O3	0.02
FeO	13.33
MnO	0.21
MgO	10.59
CaO	12.02
Na2O	1.63
K2O	1.40
Cl	0.00
F	0.10
Total	96.32
-O=Cl,F	0.04
Total	96.28

	Fe2+	15-NK	15-K	13-CNK	AV(2-4)
TSi	6.081	6.065	5.879	6.037	6.051
TAl	1.919	1.935	2.121	1.963	1.949
TFe3+	0.000	0.000	0.000	0.000	0.000
TTi	0.000	0.000	0.000	0.000	0.000
SUM IN T	8.000	8.000	8.000	8.000	8.000
CAl	0.907	0.884	0.611	0.842	0.863
CCr	0.002	0.002	0.002	0.002	0.002
CFe3+	0.000	0.114	1.524	0.330	0.222
CTi	0.095	0.095	0.092	0.095	0.095
CMg	2.381	2.375	2.302	2.364	2.370
CFe2+	1.614	1.529	0.102	1.340	1.435
CMn	0.000	0.000	0.026	0.027	0.013
CCa	0.000	0.000	0.340	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.068	0.035	0.000	0.000	0.017
BMn	0.027	0.027	0.000	0.000	0.013
BCa	1.905	1.938	1.539	1.929	1.934
BNa	0.000	0.000	0.461	0.071	0.035
SUM IN B	2.000	2.000	2.000	2.000	2.000
ACa	0.038	0.000	0.000	0.000	0.000
ANa	0.477	0.476	0.000	0.403	0.439
AK	0.270	0.269	0.261	0.268	0.268
SUM IN A	0.785	0.744	0.261	0.670	0.707
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.048	0.048	0.046	0.047	0.047
SUM CATS	15.785	15.744	15.261	15.670	15.707
SUM OXY	23.002	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferroan Pargasite
15-NK	Calcic	Ferroan Pargasite
15-K	Calcic	Tschermakite
13-CNK	Calcic	Ferroan Pargasite
AV. 15-NK & 13-CNK	Calcic	Ferroan Pargasite

Sample T3-2 ✓

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
SiO2	41.05	TSi	6.148	6.143	5.950	6.121	6.132
TiO2	0.89	TAl	1.852	1.857	2.050	1.879	1.868
Al2O3	15.52	TFe3+	0.000	0.000	0.000	0.000	0.000
Cr2O3	0.04	TTi	0.000	0.000	0.000	0.000	0.000
FeO	13.12	SUM IN T	8.000	8.000	8.000	8.000	8.000
MnO	0.24	CAl	0.890	0.883	0.603	0.851	0.867
MgO	10.70	CCr	0.005	0.005	0.005	0.005	0.005
CaO	12.18	CFe3+	0.000	0.033	1.480	0.198	0.115
Na2O	1.68	CTi	0.100	0.100	0.097	0.100	0.100
K2O	1.30	CMg	2.388	2.386	2.311	2.378	2.382
Cl	0.00	CFe2+	1.617	1.593	0.111	1.438	1.515
F	0.22	CMn	0.000	0.000	0.029	0.030	0.015
Total	96.94	CCa	0.000	0.000	0.364	0.000	0.000
-O=Cl,F	0.09	SUM IN C	5.000	5.000	5.000	5.000	5.000
Total	96.85	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.027	0.016	0.000	0.000	0.008
		BMn	0.030	0.030	0.000	0.000	0.015
		BCa	1.943	1.953	1.528	1.946	1.950
		BNa	0.000	0.000	0.472	0.054	0.027
		SUM IN B	2.000	2.000	2.000	2.000	2.000
		ACa	0.012	0.000	0.000	0.000	0.000
		ANa	0.488	0.488	0.000	0.432	0.460
		AK	0.248	0.248	0.240	0.247	0.248
		SUM IN A	0.748	0.736	0.240	0.679	0.707
		CCl	0.000	0.000	0.000	0.000	0.000
		CF	0.104	0.104	0.101	0.104	0.104
		SUM CATS	15.748	15.736	15.240	15.679	15.707
		SUM OXY	23.002	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferroan Pargasite
15-NK	Calcic	Ferroan Pargasite
15-K	Calcic	Tschermakite
13-CNK	Calcic	Ferroan Pargasite
AV. 15-NK & 13-CNK	Calcic	Ferroan Pargasite

Sample A1-1 √

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
iO2	49.77	TSi	7.744	7.736	7.711	7.697	7.716
TiO2	0.12	TAl	0.256	0.264	0.289	0.303	0.284
Al2O3	2.08	TFe3+	0.000	0.000	0.000	0.000	0.000
r2O3	0.01	TTi	0.000	0.000	0.000	0.000	0.000
eO	22.95	SUM IN T	8.000	8.000	8.000	8.000	8.000
MnO	1.47	CAl	0.126	0.117	0.091	0.077	0.097
gO	7.58	CCr	0.001	0.001	0.001	0.001	0.001
aO	11.62	CFe3+	0.000	0.050	0.197	0.278	0.164
Na2O	0.16	CTi	0.014	0.014	0.014	0.014	0.014
K2O	0.10	CMg	1.758	1.756	1.750	1.747	1.751
l	0.00	CFe2+	2.987	2.933	2.776	2.690	2.812
r	0.15	CMn	0.115	0.129	0.170	0.193	0.161
Total	96.01	CCa	0.000	0.000	0.000	0.000	0.000
O=Cl,F	0.06	SUM IN C	5.000	5.000	5.000	5.000	5.000
otal	95.95	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.000	0.000	0.000	0.000	0.000
		BMn	0.079	0.065	0.023	0.000	0.032
		BCa	1.921	1.935	1.929	1.926	1.930
		BNa	0.000	0.000	0.048	0.048	0.024
		SUM IN B	2.000	2.000	2.000	1.974	1.987
		ACa	0.017	0.000	0.000	0.000	0.000
		ANa	0.048	0.048	0.000	0.000	0.024
		AK	0.020	0.020	0.020	0.020	0.020
		SUM IN A	0.085	0.068	0.020	0.020	0.044
		CCl	0.000	0.000	0.000	0.000	0.000
		CF	0.074	0.074	0.073	0.073	0.074
		SUM CATS	15.085	15.068	15.020	14.993	15.031
		SUM OXY	23.000	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
e2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
5-K	Calcic	Ferro-Actinolite
3-CNK	Calcic	Ferro-Actinolite
15-NK & 13-CNK	Calcic	Ferro-Actinolite

ꓤample	A1-2 √
ꓤiO2	50.27
ꓤiO2	0.08
Al2O3	1.71
ꓤr2O3	0.00
ꓤeO	22.80
MnO	1.48
MgO	7.83
ꓤaO	11.52
ꓤa2O	0.13
K2O	0.09
ꓤl	0.00
ꓤ	0.04
Total	95.95
-O=Cl,F	0.02
ꓤotal	95.93

	Fe2+	15-NK	15-K	13-CNK	AV(2-4)
TSi	7.802	7.799	7.779	7.749	7.774
TAl	0.198	0.201	0.221	0.251	0.226
TFe3+	0.000	0.000	0.000	0.000	0.000
TTi	0.000	0.000	0.000	0.000	0.000
SUM IN T	8.000	8.000	8.000	8.000	8.000
CAl	0.115	0.112	0.091	0.060	0.086
CCr	0.000	0.000	0.000	0.000	0.000
CFe3+	0.000	0.013	0.132	0.311	0.162
CTi	0.009	0.009	0.009	0.009	0.009
CMg	1.811	1.810	1.806	1.799	1.805
CFe2+	2.959	2.945	2.818	2.628	2.787
CMn	0.106	0.110	0.143	0.193	0.151
CCa	0.000	0.000	0.000	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.000	0.000	0.000	0.000	0.000
BMn	0.089	0.085	0.051	0.000	0.042
BCa	1.911	1.915	1.910	1.903	1.909
BNa	0.000	0.000	0.039	0.039	0.019
SUM IN B	2.000	2.000	2.000	1.942	1.971
ACa	0.004	0.000	0.000	0.000	0.000
ANa	0.039	0.039	0.000	0.000	0.020
AK	0.018	0.018	0.018	0.018	0.018
SUM IN A	0.061	0.057	0.018	0.018	0.037
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.020	0.020	0.020	0.019	0.020
SUM CATS	15.061	15.057	15.018	14.959	15.008
SUM OXY	23.000	23.000	23.000	23.000	23.000

ꓤ ꓤHOD	GROUP	NAME
ꓤe2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
15-K	Calcic	Ferro-Actinolite

13-CNK	Calcic	Ferro-Actinolite
AV. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample A1-3 ✓

SiO2	50.03
TiO2	0.08
Al2O3	2.15
Cr2O3	0.03
FeO	23.61
MnO	1.49
MgO	7.53
CaO	11.68
Na2O	0.17
K2O	0.09
Cl	0.00
F	0.00
Total	96.86
-O=Cl,F	0.00
Total	96.86

	Fe2+	15-NK	15-K	13-CNK	AV(2-4)
TSi	7.724	7.705	7.679	7.662	7.684
TAl	0.276	0.295	0.321	0.338	0.316
TFe3+	0.000	0.000	0.000	0.000	0.000
TTi	0.000	0.000	0.000	0.000	0.000
SUM IN T	8.000	8.000	8.000	8.000	8.000
CAl	0.115	0.096	0.068	0.051	0.073
CCr	0.004	0.004	0.004	0.004	0.004
CFe3+	0.000	0.108	0.263	0.363	0.236
CTi	0.009	0.009	0.009	0.009	0.009
CMg	1.732	1.728	1.723	1.719	1.724
CFe2+	3.048	2.933	2.768	2.661	2.797
CMn	0.091	0.122	0.165	0.193	0.158
CCa	0.000	0.000	0.000	0.000	0.000
SUM IN C	5.000	5.000	5.000	5.000	5.000
BMg	0.000	0.000	0.000	0.000	0.000
BFe2+	0.000	0.000	0.000	0.000	0.000
BMn	0.104	0.073	0.028	0.000	0.036
BCa	1.896	1.927	1.921	1.917	1.922
BNa	0.000	0.000	0.051	0.050	0.025
SUM IN B	2.000	2.000	2.000	1.967	1.984
ACa	0.036	0.000	0.000	0.000	0.000
ANa	0.051	0.051	0.000	0.000	0.025
AK	0.018	0.018	0.018	0.018	0.018
SUM IN A	0.104	0.068	0.018	0.018	0.043
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.000	0.000	0.000	0.000	0.000
SUM CATS	15.104	15.068	15.018	14.985	15.027
SUM OXY	23.000	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
e2+	Calcic	Ferro-Actinolite
: NK	Calcic	Ferro-Actinolite
1.-K	Calcic	Ferro-Actinolite
3-CNK	Calcic	Ferro-Actinolite
.V. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

ample A3-1 ✓

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
SiO2	49.63	TSi	7.703	7.685	7.659	7.630	7.657
TiO2	0.07	TAl	0.297	0.315	0.341	0.370	0.343
l2O3	2.34	TFe3+	0.000	0.000	0.000	0.000	0.000
r2O3	0.00	TTi	0.000	0.000	0.000	0.000	0.000
FeO	24.36	SUM IN T	8.000	8.000	8.000	8.000	8.000
nO	1.71	CAl	0.132	0.112	0.085	0.054	0.083
gO	6.91	CCr	0.000	0.000	0.000	0.000	0.000
CaO	11.49	CFe3+	0.000	0.110	0.266	0.438	0.274
a2O	0.17	CTi	0.008	0.008	0.008	0.008	0.008
2O	0.13	CMg	1.598	1.595	1.589	1.583	1.589
Cl	0.00	CFe2+	3.162	3.044	2.878	2.694	2.869
F	0.10	CMn	0.100	0.131	0.174	0.223	0.177
otal	96.91	CCa	0.000	0.000	0.000	0.000	0.000
O=Cl,F	0.04	SUM IN C	5.000	5.000	5.000	5.000	5.000
Total	96.87	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.000	0.000	0.000	0.000	0.000
		BMn	0.125	0.094	0.049	0.000	0.047
		BCa	1.875	1.906	1.900	1.893	1.900
		BNa	0.000	0.000	0.051	0.051	0.025
		SUM IN B	2.000	2.000	2.000	1.943	1.972
		ACa	0.036	0.000	0.000	0.000	0.000
		ANa	0.051	0.051	0.000	0.000	0.026

AK	0.026	0.026	0.026	0.025	0.026
SUM IN A	0.113	0.077	0.026	0.025	0.051
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.049	0.049	0.049	0.049	0.049
SUM CATS	15.113	15.077	15.026	14.969	15.023
SUM OXY	23.000	23.000	23.000	23.000	23.000

ETHOD	GROUP	NAME
e2+	Calcic	Ferro-Actinolite
5-NK	Calcic	Ferro-Actinolite
15-K	Calcic	Ferro-Actinolite
3-CNK	Calcic	Ferro-Actinolite
V. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample A3-2

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
iO2	49.63	TSi	7.763	7.754	7.729	7.705	7.729
TiO2	0.10	TAl	0.237	0.246	0.271	0.295	0.271
l2O3	1.85	TFe3+	0.000	0.000	0.000	0.000	0.000
r2O3	0.00	TTi	0.000	0.000	0.000	0.000	0.000
FeO	24.74	SUM IN T	8.000	8.000	8.000	8.000	8.000
MnO	1.90	CAl	0.105	0.095	0.069	0.043	0.069
gO	6.41	CCr	0.000	0.000	0.000	0.000	0.000
aO	11.45	CFe3+	0.000	0.055	0.203	0.347	0.201
Na2O	0.16	CTi	0.012	0.012	0.012	0.012	0.012
2O	0.12	CMg	1.494	1.493	1.488	1.483	1.488
l	0.00	CFe2+	3.237	3.177	3.019	2.865	3.021
	0.03	CMn	0.153	0.168	0.210	0.250	0.209
otal	96.39	CCa	0.000	0.000	0.000	0.000	0.000
O=Cl,F	0.01	SUM IN C	5.000	5.000	5.000	5.000	5.000
Total	96.38	BMg	0.000	0.000	0.000	0.000	0.000
		BFe2+	0.000	0.000	0.000	0.000	0.000

BMn	0.099	0.083	0.041	0.000	0.042
BCa	1.901	1.917	1.911	1.905	1.911
BNa	0.000	0.000	0.048	0.048	0.024
SUM IN B	2.000	2.000	2.000	1.953	1.976
ACa	0.018	0.000	0.000	0.000	0.000
ANa	0.049	0.048	0.000	0.000	0.024
AK	0.024	0.024	0.024	0.024	0.024
SUM IN A	0.091	0.072	0.024	0.024	0.048
CCl	0.000	0.000	0.000	0.000	0.000
CF	0.015	0.015	0.015	0.015	0.015
SUM CATS	15.091	15.072	15.024	14.977	15.024
SUM OXY	23.000	23.000	23.000	23.000	23.000

METHOD	GROUP	NAME
Fe2+	Calcic	Ferro-Actinolite
15-NK	Calcic	Ferro-Actinolite
15-K	Calcic	Ferro-Actinolite
13-CNK	Calcic	Ferro-Actinolite
AV. 15-NK & 13-CNK	Calcic	Ferro-Actinolite

Sample C2-2

			Fe2+	15-NK	15-K	13-CNK	AV(2-4)
SiO2	43.09	TSi	6.512	6.508	6.372	6.473	6.490
TiO2	0.40	TAl	1.488	1.492	1.628	1.527	1.510
Al2O3	12.78	TFe3+	0.000	0.000	0.000	0.000	0.000
Cr2O3	0.00	TTi	0.000	0.000	0.000	0.000	0.000
FeO	15.90	SUM IN T	8.000	8.000	8.000	8.000	8.000
MnO	0.47	CAl	0.790	0.785	0.602	0.737	0.761
MgO	9.65	CCr	0.000	0.000	0.000	0.000	0.000
CaO	11.92	CFe3+	0.000	0.023	0.981	0.273	0.148
Na2O	1.09	CTi	0.045	0.045	0.044	0.045	0.045
K2O	1.42	CMg	2.173	2.172	2.127	2.160	2.166

:1	0.00
F	0.29
0.060	0.030
'otal	97.01
Cl,F	0.12
'l'ucal	96.89

CFe2+	1.991	1.974	0.985	1.725	1.849	
CMn	0.000	0.000	0.0	0.000	0.000	0.059
CCa	0.000	0.000	0.201	0.000	0.000	
SUM IN C	5.000	5.000	5.000	5.000	5.000	
BMg	0.000	0.000	0.000	0.000	0.000	
BFe2+	0.018	0.011	0.000	0.000	0.005	
BMn	0.060	0.060	0.000	0.000	0.030	
BCa	1.921	1.929	1.687	1.919	1.924	
BNa	0.000	0.000	0.313	0.081	0.041	
SUM IN B	2.000	2.000	2.000	2.000	2.000	
ACa	0.009	0.000	0.000	0.000	0.000	
ANa	0.319	0.319	0.000	0.236	0.278	
AK	0.274	0.274	0.268	0.272	0.273	
SUM IN A	0.602	0.593	0.268	0.508	0.551	
CCl	0.000	0.000	0.000	0.000	0.000	
CF	0.139	0.139	0.136	0.138	0.138	
SUM CATS	15.602	15.593	15.268	15.508	15.551	
SUM OXY	23.002	23.000	23.000	23.000	23.000	

IETHOD	GROUP	NAME
Fe2+	Calcic	Edenitic Hornblende
15-NK	Calcic	Edenitic Hornblende
15-K	Calcic	Tschermakitic Hornblende
13-CNK	Calcic	Ferroan Pargasitic Hornblende
\V. 15-NK & 13-CNK	Calcic	Ferroan Pargasitic Hornblende

```
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.\HDIPCDOS\HDILOAD.EXE
C:\WINDOWS\SMARTDRV.EXE
SET PCPLUS=C:\PCPLUS
C:\WINDOWS\mouse.COM /Y
```

JOB TITLE: PYROXENES

Label: B4-1 DIOP   Analysis Number: 1

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.09	0.0000	Na	0.0086	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	8.62	0.0000	Mg	0.8030	0.0000
Fe	3.75	0.0000	Fe	0.1521	0.0000
Ca	17.63	0.0000	Ca	0.9958	0.0000
Al	0.18	0.0000	Al	0.0153	0.0000
Mn	1.18	0.0000	Mn	0.0486	0.0000
Si	24.51	0.0000	Si	1.9749	0.0000
Ti	0.01	0.0000	Ti	0.0005	0.0000
Cr	0.03	0.0000	Cr	0.0013	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	42.26	0.0000	O	5.9793	0.0000
Total	98.27			9.9793	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9749		0.0000
Al(IV)	0.0153		0.0000
	Sum -->	1.9902	0.0000
Ca	0.9958		0.0000
Mg	0.8030		0.0000
Fe	0.1107		0.0000
Al(VI)	0.0000		0.0000
Mn	0.0486		0.0000
Na	0.0086		0.0000
Cr	0.0013		0.0000
Ti	0.0005		0.0000
Fe3	0.0414		0.0000
	Sum -->	2.0098	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: B4-3 DIOP

Analysis Number: 3

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.08	0.0000	Na	0.0079	0.0000
K	0.00	0.0000	K	0.0001	0.0000
Mg	8.71	0.0000	Mg	0.8001	0.0000
Fe	3.73	0.0000	Fe	0.1491	0.0000
Ca	17.76	0.0000	Ca	0.9892	0.0000
Al	0.16	0.0000	Al	0.0132	0.0000
Mn	1.26	0.0000	Mn	0.0512	0.0000
Si	25.01	0.0000	Si	1.9876	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.04	0.0000	Cr	0.0017	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	42.94	0.0000	O	5.9909	0.0000
Total	99.70			9.9909	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9876		0.0000
Al(IV)	0.0124		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9892		0.0000
Mg	0.8001		0.0000
Fe	0.1309		0.0000
Al(VI)	0.0007		0.0000
Mn	0.0512		0.0000
Na	0.0079		0.0000
Cr	0.0017		0.0000
Ti	0.0000		0.0000
Fe3	0.0182		0.0000
	Sum -->	1.9999	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: B4-4 DIOP

Analysis Number: 4

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.09	0.0000	Na	0.0088	0.0000
K	0.01	0.0000	K	0.0004	0.0000
Mg	8.61	0.0000	Mg	0.8119	0.0000
Fe	3.82	0.0000	Fe	0.1566	0.0000
Ca	17.82	0.0000	Ca	1.0190	0.0000
Al	0.16	0.0000	Al	0.0134	0.0000
Mn	1.35	0.0000	Mn	0.0565	0.0000
Si	23.69	0.0000	Si	1.9334	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.07	0.0000	F	0.0081	0.0000
O	41.45	0.0000	O	5.9353	0.0000
Total	97.06			9.9434	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9334		0.0000
Al(IV)	0.0134		0.0000
	Sum -->	1.9468	0.0000
Ca	1.0190		0.0000
Mg	0.8119		0.0000
Fe	0.0272		0.0000
Al(VI)	0.0000		0.0000
Mn	0.0565		0.0000
Na	0.0088		0.0000
Cr	0.0000		0.0000
Ti	0.0000		0.0000
Fe3	0.1294		0.0000
	Sum -->	2.0528	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: B4-5 DIOP

Analysis Number: 5

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.06	0.0000	Na	0.0057	0.0000
K	0.01	0.0000	K	0.0008	0.0000
Mg	8.47	0.0000	Mg	0.7808	0.0000
Fe	4.24	0.0000	Fe	0.1702	0.0000
Ca	17.82	0.0000	Ca	0.9963	0.0000
Al	0.08	0.0000	Al	0.0064	0.0000
Mn	1.40	0.0000	Mn	0.0573	0.0000
Si	24.85	0.0000	Si	1.9822	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.01	0.0000	Cr	0.0004	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	42.72	0.0000	O	5.9823	0.0000
Total	99.67			9.9823	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9822		0.0000
Al(IV)	0.0064		0.0000
	Sum -->	1.9886	0.0000
Ca	0.9963		0.0000
Mg	0.7808		0.0000
Fe	0.1347		0.0000
Al(VI)	0.0000		0.0000
Mn	0.0573		0.0000
Na	0.0057		0.0000
Cr	0.0004		0.0000
Ti	0.0000		0.0000
Fe3	0.0355		0.0000
	Sum -->	2.0106	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: T5-1 DIOP

Analysis Number: 6

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.09	0.0000	Na	0.0088	0.0000
K	0.00	0.0000	K	0.0002	0.0000
Mg	8.18	0.0000	Mg	0.7537	0.0000
Fe	6.01	0.0000	Fe	0.2411	0.0000
Ca	17.33	0.0000	Ca	0.9685	0.0000
Al	0.65	0.0000	Al	0.0537	0.0000
Mn	0.22	0.0000	Mn	0.0092	0.0000
Si	24.59	0.0000	Si	1.9610	0.0000
Ti	0.08	0.0000	Ti	0.0038	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.03	0.0000	F	0.0038	0.0000
O	42.78	0.0000	O	5.9870	0.0000
Total	99.98			9.9907	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9610		0.0000
Al(IV)	0.0390		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9685		0.0000
Mg	0.7537		0.0000
Fe	0.2150		0.0000
Al(VI)	0.0147		0.0000
Mn	0.0092		0.0000
Na	0.0088		0.0000
Cr	0.0000		0.0000
Ti	0.0038		0.0000
Fe3	0.0261		0.0000
	Sum -->	1.9998	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: T5-2 DIOP

Analysis Number: 7

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.07	0.0000	Na	0.0072	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	8.46	0.0000	Mg	0.7810	0.0000
Fe	5.21	0.0000	Fe	0.2095	0.0000
Ca	17.42	0.0000	Ca	0.9756	0.0000
Al	0.57	0.0000	Al	0.0472	0.0000
Mn	0.21	0.0000	Mn	0.0085	0.0000
Si	24.62	0.0000	Si	1.9679	0.0000
Ti	0.06	0.0000	Ti	0.0030	0.0000
Cr	0.00	0.0000	Cr	0.0001	0.0000
F	0.05	0.0000	F	0.0058	0.0000
O	42.72	0.0000	O	5.9907	0.0000
Total	99.41			9.9965	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9679		0.0000
Al(IV)	0.0321		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9756		0.0000
Mg	0.7810		0.0000
Fe	0.1909		0.0000
Al(VI)	0.0150		0.0000
Mn	0.0085		0.0000
Na	0.0072		0.0000
Cr	0.0001		0.0000
Ti	0.0030		0.0000
Fe3	0.0186		0.0000
	Sum -->	2.0000	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: T5-3 DIOP

Analysis Number: 8

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.07	0.0000	Na	0.0075	0.0000
K	0.01	0.0000	K	0.0008	0.0000
Mg	8.27	0.0000	Mg	0.7865	0.0000
Fe	5.36	0.0000	Fe	0.2219	0.0000
Ca	16.65	0.0000	Ca	0.9607	0.0000
Al	0.60	0.0000	Al	0.0516	0.0000
Mn	0.24	0.0000	Mn	0.0099	0.0000
Si	23.74	0.0000	Si	1.9550	0.0000
Ti	0.11	0.0000	Ti	0.0055	0.0000
Cr	0.01	0.0000	Cr	0.0005	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	41.39	0.0000	O	5.9822	0.0000
Total	96.47			9.9822	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9550		0.0000
Al(IV)	0.0450		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9607		0.0000
Mg	0.7865		0.0000
Fe	0.1864		0.0000
Al(VI)	0.0066		0.0000
Mn	0.0099		0.0000
Na	0.0075		0.0000
Cr	0.0005		0.0000
Ti	0.0055		0.0000
Fe3	0.0355		0.0000
	Sum -->	1.9992	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: T5-4 DIOP Analysis Number: 9

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.04	0.0000	Na	0.0042	0.0000
K	0.01	0.0000	K	0.0005	0.0000
Mg	7.83	0.0000	Mg	0.7276	0.0000
Fe	6.83	0.0000	Fe	0.2762	0.0000
Ca	16.95	0.0000	Ca	0.9552	0.0000
Al	0.84	0.0000	Al	0.0702	0.0000
Mn	0.14	0.0000	Mn	0.0058	0.0000
Si	24.30	0.0000	Si	1.9548	0.0000
Ti	0.10	0.0000	Ti	0.0049	0.0000
Cr	0.01	0.0000	Cr	0.0005	0.0000
F	0.05	0.0000	F	0.0057	0.0000
O	42.46	0.0000	O	5.9924	0.0000
Total	99.57			9.9981	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9548		0.0000
Al(IV)	0.0452		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9552		0.0000
Mg	0.7276		0.0000
Fe	0.2611		0.0000
Al(VI)	0.0250		0.0000
Mn	0.0058		0.0000
Na	0.0042		0.0000
Cr	0.0005		0.0000
Ti	0.0049		0.0000
Fe3	0.0151		0.0000
	Sum -->	1.9995	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: A2-1 DIOP

Analysis Number: 10

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.15	0.0000	Na	0.0155	0.0000
K	0.01	0.0000	K	0.0009	0.0000
Mg	5.75	0.0000	Mg	0.5497	0.0000
Fe	9.99	0.0000	Fe	0.4157	0.0000
Ca	16.77	0.0000	Ca	0.9722	0.0000
Al	0.33	0.0000	Al	0.0283	0.0000
Mn	0.50	0.0000	Mn	0.0213	0.0000
Si	24.11	0.0000	Si	1.9955	0.0000
Ti	0.02	0.0000	Ti	0.0008	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.04	0.0000	F	0.0048	0.0000
O	41.34	0.0000	O	6.0023	0.0000
Total	99.01			10.0071	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9955		0.0000
Al(IV)	0.0045		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9722		0.0000
Mg	0.5497		0.0000
Fe	0.4157		0.0000
Al(VI)	0.0239		0.0000
Mn	0.0213		0.0000
Na	0.0155		0.0000
Cr	0.0000		0.0000
Ti	0.0008		0.0000
Fe3	0.0000		0.0000
	Sum -->	1.9991	0.0000
O	6.0023		0.0000
	Sum -->	6.0023	0.0000

JOB TITLE: PYROXENES

Label: A2-2 DIOP

Analysis Number: 11

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.15	0.0000	Na	0.0153	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	6.27	0.0000	Mg	0.5968	0.0000
Fe	9.27	0.0000	Fe	0.3843	0.0000
Ca	16.75	0.0000	Ca	0.9671	0.0000
Al	0.29	0.0000	Al	0.0248	0.0000
Mn	0.52	0.0000	Mn	0.0219	0.0000
Si	24.14	0.0000	Si	1.9889	0.0000
Ti	0.01	0.0000	Ti	0.0005	0.0000
Cr	0.01	0.0000	Cr	0.0004	0.0000
F	0.00	0.0000	F	0.0005	0.0000
O	41.44	0.0000	O	5.9942	0.0000
Total	98.85			9.9947	

Mineral: PYROXENE √

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9889		0.0000
Al(IV)	0.0111		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9671		0.0000
Mg	0.5968		0.0000
Fe	0.3727		0.0000
Al(VI)	0.0137		0.0000
Mn	0.0219		0.0000
Na	0.0153		0.0000
Cr	0.0004		0.0000
Ti	0.0005		0.0000
Fe3	0.0115		0.0000
	Sum -->	2.0000	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: A2-3 DIOP

Analysis Number: 12

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.18	0.0000	Na	0.0182	0.0000
K	0.00	0.0000	K	0.0002	0.0000
Mg	6.31	0.0000	Mg	0.5981	0.0000
Fe	8.81	0.0000	Fe	0.3635	0.0000
Ca	16.86	0.0000	Ca	0.9690	0.0000
Al	0.40	0.0000	Al	0.0340	0.0000
Mn	0.54	0.0000	Mn	0.0225	0.0000
Si	24.31	0.0000	Si	1.9932	0.0000
Ti	0.00	0.0000	Ti	0.0001	0.0000
Cr	0.02	0.0000	Cr	0.0011	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	41.69	0.0000	O	6.0016	0.0000
Total	99.14			10.0016	

Mineral: PYROXENE ✓
Fe(2+) Fe(3+) ratio adjusted
Oct(2) Tet(2) Oxy(6)
Fixed cation sum

	Cation Number		Error
Si	1.9932		0.0000
Al(IV)	0.0068		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9690		0.0000
Mg	0.5981		0.0000
Fe	0.3635		0.0000
Al(VI)	0.0272		0.0000
Mn	0.0225		0.0000
Na	0.0182		0.0000
Cr	0.0011		0.0000
Ti	0.0001		0.0000
Fe3	0.0000		0.0000
	Sum -->	1.9998	0.0000
O	6.0016		0.0000
	Sum -->	6.0016	0.0000

JOB TITLE: PYROXENES

Label: A2-4 DIOP

Analysis Number: 13

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.17	0.0000	Na	0.0172	0.0000
K	0.01	0.0000	K	0.0007	0.0000
Mg	5.64	0.0000	Mg	0.5403	0.0000
Fe	10.44	0.0000	Fe	0.4352	0.0000
Ca	16.72	0.0000	Ca	0.9709	0.0000
Al	0.23	0.0000	Al	0.0196	0.0000
Mn	0.51	0.0000	Mn	0.0218	0.0000
Si	24.07	0.0000	Si	1.9944	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	41.21	0.0000	O	5.9950	0.0000
Total	99.02			9.9950	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9944		0.0000
Al(IV)	0.0056		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9709		0.0000
Mg	0.5403		0.0000
Fe	0.4252		0.0000
Al(VI)	0.0139		0.0000
Mn	0.0218		0.0000
Na	0.0172		0.0000
Cr	0.0000		0.0000
Ti	0.0000		0.0000
Fe3	0.0100		0.0000
	Sum -->	1.9993	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C1-1 DIOP? Analysis Number: 14

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.15	0.0000	Na	0.0149	0.0000
K	0.01	0.0000	K	0.0007	0.0000
Mg	5.97	0.0000	Mg	0.5769	0.0000
Fe	9.68	0.0000	Fe	0.4073	0.0000
Ca	16.73	0.0000	Ca	0.9813	0.0000
Al	0.40	0.0000	Al	0.0352	0.0000
Mn	0.50	0.0000	Mn	0.0212	0.0000
Si	23.45	0.0000	Si	1.9624	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	40.65	0.0000	O	5.9721	0.0000
Total	97.53			9.9721	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9624		0.0000
Al(IV)	0.0352		0.0000
	Sum -->	1.9976	0.0000
Ca	0.9813		0.0000
Mg	0.5769		0.0000
Fe	0.3515		0.0000
Al(VI)	0.0000		0.0000
Mn	0.0212		0.0000
Na	0.0149		0.0000
Cr	0.0000		0.0000
Ti	0.0000		0.0000
Fe3	0.0558		0.0000
	Sum -->	2.0017	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C1-2 DIOP? Analysis Number: 15

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.15	0.0000	Na	0.0149	0.0000
K	0.01	0.0000	K	0.0008	0.0000
Mg	5.99	0.0000	Mg	0.5738	0.0000
Fe	9.74	0.0000	Fe	0.4063	0.0000
Ca	16.51	0.0000	Ca	0.9594	0.0000
Al	0.43	0.0000	Al	0.0368	0.0000
Mn	0.60	0.0000	Mn	0.0256	0.0000
Si	23.90	0.0000	Si	1.9815	0.0000
Ti	0.02	0.0000	Ti	0.0009	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.11	0.0000	F	0.0135	0.0000
O	41.22	0.0000	O	5.9929	0.0000
Total	98.69			10.0064	

Mineral: PYROXENE ✓
Fe(2+) Fe(3+) ratio adjusted
Oct(2) Tet(2) Oxy(6)
Fixed cation sum

	Cation Number		Error
Si	1.9815		0.0000
Al(IV)	0.0185		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9594		0.0000
Mg	0.5738		0.0000
Fe	0.3921		0.0000
Al(VI)	0.0182		0.0000
Mn	0.0256		0.0000
Na	0.0149		0.0000
Cr	0.0000		0.0000
Ti	0.0009		0.0000
Fe3	0.0142		0.0000
	Sum -->	1.9992	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C1-3 DIOP? Analysis Number: 16

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.11	0.0000	Na	0.0115	0.0000
K	0.01	0.0000	K	0.0005	0.0000
Mg	6.03	0.0000	Mg	0.5765	0.0000
Fe	9.77	0.0000	Fe	0.4063	0.0000
Ca	16.67	0.0000	Ca	0.9665	0.0000
Al	0.36	0.0000	Al	0.0312	0.0000
Mn	0.47	0.0000	Mn	0.0200	0.0000
Si	24.01	0.0000	Si	1.9863	0.0000
Ti	0.02	0.0000	Ti	0.0008	0.0000
Cr	0.01	0.0000	Cr	0.0005	0.0000
F	0.03	0.0000	F	0.0043	0.0000
O	41.31	0.0000	O	5.9969	0.0000
Total	98.81			10.0012	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9863		0.0000
Al(IV)	0.0137		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9665		0.0000
Mg	0.5765		0.0000
Fe	0.4001		0.0000
Al(VI)	0.0175		0.0000
Mn	0.0200		0.0000
Na	0.0115		0.0000
Cr	0.0005		0.0000
Ti	0.0008		0.0000
Fe3	0.0062		0.0000
	Sum -->	1.9995	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C1-4 DIOP? Analysis Number: 17

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.14	0.0000	Na	0.0142	0.0000
K	0.01	0.0000	K	0.0009	0.0000
Mg	5.98	0.0000	Mg	0.5793	0.0000
Fe	9.74	0.0000	Fe	0.4109	0.0000
Ca	16.74	0.0000	Ca	0.9835	0.0000
Al	0.44	0.0000	Al	0.0385	0.0000
Mn	0.53	0.0000	Mn	0.0229	0.0000
Si	23.24	0.0000	Si	1.9485	0.0000
Ti	0.02	0.0000	Ti	0.0012	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.10	0.0000	F	0.0121	0.0000
O	40.54	0.0000	O	5.9612	0.0000
Total	97.50			9.9733	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9485		0.0000
Al(IV)	0.0385		0.0000
	Sum -->	1.9870	0.0000
Ca	0.9835		0.0000
Mg	0.5793		0.0000
Fe	0.3333		0.0000
Al(VI)	0.0000		0.0000
Mn	0.0229		0.0000
Na	0.0142		0.0000
Cr	0.0000		0.0000
Ti	0.0012		0.0000
Fe3	0.0776		0.0000
	Sum -->	2.0121	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C2-1 DIOP

Analysis Number: 18

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.15	0.0000	Na	0.0156	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	5.65	0.0000	Mg	0.5442	0.0000
Fe	10.33	0.0000	Fe	0.4328	0.0000
Ca	16.62	0.0000	Ca	0.9709	0.0000
Al	0.56	0.0000	Al	0.0486	0.0000
Mn	0.50	0.0000	Mn	0.0214	0.0000
Si	23.57	0.0000	Si	1.9645	0.0000
Ti	0.04	0.0000	Ti	0.0019	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.01	0.0000	F	0.0015	0.0000
O	40.89	0.0000	O	5.9828	0.0000
Total	98.33			9.9843	

Mineral: PYROXENE

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9645		0.0000
Al(IV)	0.0355		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9709		0.0000
Mg	0.5442		0.0000
Fe	0.3984		0.0000
Al(VI)	0.0131		0.0000
Mn	0.0214		0.0000
Na	0.0156		0.0000
Cr	0.0000		0.0000
Ti	0.0019		0.0000
Fe3	0.0344		0.0000
	Sum -->	2.0000	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C5-1 DIOP

Analysis Number: 19

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.13	0.0000	Na	0.0125	0.0000
K	0.00	0.0000	K	0.0001	0.0000
Mg	6.54	0.0000	Mg	0.6196	0.0000
Fe	8.91	0.0000	Fe	0.3676	0.0000
Ca	16.80	0.0000	Ca	0.9652	0.0000
Al	0.41	0.0000	Al	0.0347	0.0000
Mn	0.47	0.0000	Mn	0.0198	0.0000
Si	24.14	0.0000	Si	1.9795	0.0000
Ti	0.02	0.0000	Ti	0.0010	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.02	0.0000	F	0.0024	0.0000
O	41.62	0.0000	O	5.9912	0.0000
Total	99.06			9.9937	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9795		0.0000
Al(IV)	0.0205		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9652		0.0000
Mg	0.6196		0.0000
Fe	0.3500		0.0000
Al(VI)	0.0141		0.0000
Mn	0.0198		0.0000
Na	0.0125		0.0000
Cr	0.0000		0.0000
Ti	0.0010		0.0000
Fe3	0.0175		0.0000
	Sum -->	1.9999	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C5-2 DIOP

Analysis Number: 20

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.15	0.0000	Na	0.0147	0.0000
K	0.01	0.0000	K	0.0005	0.0000
Mg	6.49	0.0000	Mg	0.6172	0.0000
Fe	8.85	0.0000	Fe	0.3664	0.0000
Ca	16.69	0.0000	Ca	0.9623	0.0000
Al	0.37	0.0000	Al	0.0317	0.0000
Mn	0.44	0.0000	Mn	0.0183	0.0000
Si	24.15	0.0000	Si	1.9872	0.0000
Ti	0.03	0.0000	Ti	0.0014	0.0000
Cr	0.01	0.0000	Cr	0.0004	0.0000
F	0.02	0.0000	F	0.0019	0.0000
O	41.53	0.0000	O	5.9970	0.0000
Total	98.73			9.9990	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9872		0.0000
Al(IV)	0.0128		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9623		0.0000
Mg	0.6172		0.0000
Fe	0.3604		0.0000
Al(VI)	0.0189		0.0000
Mn	0.0183		0.0000
Na	0.0147		0.0000
Cr	0.0004		0.0000
Ti	0.0014		0.0000
Fe3	0.0060		0.0000
	Sum -->	1.9995	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C2-3 AMP

Analysis Number: 21

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.15	0.0000	Na	0.0152	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	6.86	0.0000	Mg	0.6452	0.0000
Fe	8.35	0.0000	Fe	0.3418	0.0000
Ca	16.98	0.0000	Ca	0.9678	0.0000
Al	0.30	0.0000	Al	0.0253	0.0000
Mn	0.43	0.0000	Mn	0.0178	0.0000
Si	24.40	0.0000	Si	1.9851	0.0000
Ti	0.02	0.0000	Ti	0.0009	0.0000
Cr	0.02	0.0000	Cr	0.0010	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	41.95	0.0000	O	5.9914	0.0000
Total	99.47			9.9914	

Mineral: PYROXENE ✓
Fe(2+) Fe(3+) ratio adjusted
Oct(2) Tet(2) Oxy(6)
Fixed cation sum

	Cation Number		Error
Si	1.9851		0.0000
Al(IV)	0.0149		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9678		0.0000
Mg	0.6452		0.0000
Fe	0.3247		0.0000
Al(VI)	0.0104		0.0000
Mn	0.0178		0.0000
Na	0.0152		0.0000
Cr	0.0010		0.0000
Ti	0.0009		0.0000
Fe3	0.0172		0.0000
	Sum -->	2.0000	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C3-1 AMP

Analysis Number: 22

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.14	0.0000	Na	0.0148	0.0000
K	0.02	0.0000	K	0.0014	0.0000
Mg	5.47	0.0000	Mg	0.5305	0.0000
Fe	10.73	0.0000	Fe	0.4528	0.0000
Ca	16.17	0.0000	Ca	0.9507	0.0000
Al	0.54	0.0000	Al	0.0472	0.0000
Mn	0.50	0.0000	Mn	0.0213	0.0000
Si	23.59	0.0000	Si	1.9799	0.0000
Ti	0.03	0.0000	Ti	0.0015	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.12	0.0000	F	0.0144	0.0000
O	40.75	0.0000	O	5.9966	0.0000
Total	98.06			10.0110	

Mineral: PYROXENE ✓

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9799		0.0000
Al(IV)	0.0201		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9507		0.0000
Mg	0.5305		0.0000
Fe	0.4460		0.0000
Al(VI)	0.0271		0.0000
Mn	0.0213		0.0000
Na	0.0148		0.0000
Cr	0.0000		0.0000
Ti	0.0015		0.0000
Fe3	0.0067		0.0000
	Sum -->	1.9986	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: PYROXENES

Label: C3-2 AMP

Analysis Number: 23

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.14	0.0000	Na	0.0139	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	5.78	0.0000	Mg	0.5532	0.0000
Fe	10.27	0.0000	Fe	0.4280	0.0000
Ca	16.57	0.0000	Ca	0.9623	0.0000
Al	0.40	0.0000	Al	0.0348	0.0000
Mn	0.61	0.0000	Mn	0.0260	0.0000
Si	23.89	0.0000	Si	1.9791	0.0000
Ti	0.04	0.0000	Ti	0.0019	0.0000
Cr	0.02	0.0000	Cr	0.0007	0.0000
F	0.03	0.0000	F	0.0043	0.0000
O	41.21	0.0000	O	5.9918	0.0000
Total	98.96			9.9961	

Mineral: PYROXENE

Fe(2+) Fe(3+) ratio adjusted

Oct(2) Tet(2) Oxy(6)

Fixed cation sum

	Cation Number		Error
Si	1.9791		0.0000
Al(IV)	0.0209		0.0000
	Sum -->	2.0000	0.0000
Ca	0.9623		0.0000
Mg	0.5532		0.0000
Fe	0.4116		0.0000
Al(VI)	0.0140		0.0000
Mn	0.0260		0.0000
Na	0.0139		0.0000
Cr	0.0007		0.0000
Ti	0.0019		0.0000
Fe3	0.0164		0.0000
	Sum -->	2.0000	0.0000
O	6.0000		0.0000
	Sum -->	6.0000	0.0000

JOB TITLE: GARNETS

Label: B1-1 GAR

Analysis Number: 1

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.00	0.0000	Na	0.0000	0.0000
K	0.00	0.0000	K	0.0007	0.0000
Mg	0.00	0.0000	Mg	0.0006	0.0000
Fe	22.05	0.0000	Fe	2.0410	0.0000
Ca	22.40	0.0000	Ca	2.8890	0.0000
Al	0.10	0.0000	Al	0.0197	0.0000
Mn	1.01	0.0000	Mn	0.0953	0.0000
Si	16.05	0.0000	Si	2.9534	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.00	0.0000	Cr	0.0003	0.0000
F	0.09	0.0000	F	0.0258	0.0000
O	33.98	0.0000	O	10.9627	0.0000
Total	95.70			18.9886	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9534		0.0000
Al(IV)	0.0197		0.0000
	Sum -->	2.9731	0.0000
Al(VI)	0.0000		0.0000
Ti	0.0000		0.0000
Cr	0.0003		0.0000
	Sum -->	0.0003	0.0000
Fe	2.0410		0.0000
Mg	0.0006		0.0000
Ca	2.8890		0.0000
Mn	0.0953		0.0000
	Sum -->	5.0259	0.0000
O	10.9627		0.0000
	Sum -->	10.9627	0.0000

JOB TITLE: GARNETS

Label: B1-2 GAR

Analysis Number: 2

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.00	0.0000	Na	0.0011	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	0.00	0.0000	Mg	0.0000	0.0000
Fe	22.00	0.0000	Fe	2.0382	0.0000
Ca	22.09	0.0000	Ca	2.8509	0.0000
Al	0.16	0.0000	Al	0.0305	0.0000
Mn	1.14	0.0000	Mn	0.1077	0.0000
Si	16.12	0.0000	Si	2.9681	0.0000
Ti	0.02	0.0000	Ti	0.0025	0.0000
Cr	0.01	0.0000	Cr	0.0010	0.0000
F	0.04	0.0000	F	0.0120	0.0000
O	34.00	0.0000	O	10.9851	0.0000
Total	95.59			18.9971	

Mineral: GARNET

STANDARD GARNET

X(3) Y(2) Z(3) Oxy(12)

Fixed cation sum

	Cation Number		Error
Si	2.9681		0.0000
Al(IV)	0.0305		0.0000
	Sum -->	2.9986	0.0000
Al(VI)	0.0000		0.0000
Ti	0.0025		0.0000
Cr	0.0010		0.0000
	Sum -->	0.0035	0.0000
Fe	2.0382		0.0000
Mg	0.0000		0.0000
Ca	2.8509		0.0000
Mn	0.1077		0.0000
	Sum -->	4.9968	0.0000
O	10.9851		0.0000
	Sum -->	10.9851	0.0000

JOB TITLE: GARNETS

Label: B1-3 GAR

Analysis Number: 3

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.00	0.0000	Na	0.0000	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	0.00	0.0000	Mg	0.0011	0.0000
Fe	22.38	0.0000	Fe	2.0568	0.0000
Ca	22.39	0.0000	Ca	2.8674	0.0000
Al	0.14	0.0000	Al	0.0262	0.0000
Mn	1.18	0.0000	Mn	0.1105	0.0000
Si	16.07	0.0000	Si	2.9370	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.01	0.0000	Cr	0.0010	0.0000
F	0.13	0.0000	F	0.0354	0.0000
O	34.19	0.0000	O	10.9504	0.0000
Total	96.51			18.9858	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9370		0.0000
Al(IV)	0.0262		0.0000
	Sum -->	2.9633	0.0000
Al(VI)	0.0000		0.0000
Ti	0.0000		0.0000
Cr	0.0010		0.0000
	Sum -->	0.0010	0.0000
Fe	2.0568		0.0000
Mg	0.0011		0.0000
Ca	2.8674		0.0000
Mn	0.1105		0.0000
	Sum -->	5.0358	0.0000
O	10.9504		0.0000
	Sum -->	10.9504	0.0000

JOB TITLE: GARNETS

Label: B1-4 GAR Analysis Number: 4

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0018	0.0000
K	0.01	0.0000	K	0.0008	0.0000
Mg	0.00	0.0000	Mg	0.0004	0.0000
Fe	22.01	0.0000	Fe	2.0276	0.0000
Ca	22.29	0.0000	Ca	2.8604	0.0000
Al	0.13	0.0000	Al	0.0257	0.0000
Mn	1.15	0.0000	Mn	0.1076	0.0000
Si	16.25	0.0000	Si	2.9756	0.0000
Ti	0.00	0.0000	Ti	0.0001	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.04	0.0000	F	0.0119	0.0000
O	34.19	0.0000	O	10.9869	0.0000
Total	96.09			18.9988	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9756		0.0000
Al(IV)	0.0244		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	0.0013		0.0000
Ti	0.0001		0.0000
Cr	0.0000		0.0000
	Sum -->	0.0014	0.0000
Fe	2.0276		0.0000
Mg	0.0004		0.0000
Ca	2.8604		0.0000
Mn	0.1076		0.0000
	Sum -->	4.9960	0.0000
O	10.9869		0.0000
	Sum -->	10.9869	0.0000

JOB TITLE: GARNETS

Label: B2-5 GAR

Analysis Number: 5

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.00	0.0000	Na	0.0000	0.0000
K	0.01	0.0000	K	0.0009	0.0000
Mg	0.00	0.0000	Mg	0.0000	0.0000
Fe	21.92	0.0000	Fe	2.0474	0.0000
Ca	22.27	0.0000	Ca	2.8985	0.0000
Al	0.13	0.0000	Al	0.0253	0.0000
Mn	1.12	0.0000	Mn	0.1063	0.0000
Si	15.73	0.0000	Si	2.9213	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.00	0.0000	Cr	0.0001	0.0000
F	0.00	0.0000	F	0.0011	0.0000
O	33.54	0.0000	O	10.9337	0.0000
Total	94.74			18.9348	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9213		0.0000
Al(IV)	0.0253		0.0000
	Sum -->	2.9467	0.0000
Al(VI)	0.0000		0.0000
Ti	0.0000		0.0000
Cr	0.0001		0.0000
	Sum -->	0.0001	0.0000
Fe	2.0474		0.0000
Mg	0.0000		0.0000
Ca	2.8985		0.0000
Mn	0.1063		0.0000
	Sum -->	5.0523	0.0000
O	10.9337		0.0000
	Sum -->	10.9337	0.0000

JOB TITLE: GARNETS

Label: B2-6 GAR

Analysis Number: 6

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0023	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	0.00	0.0000	Mg	0.0002	0.0000
Fe	21.57	0.0000	Fe	2.0347	0.0000
Ca	22.12	0.0000	Ca	2.9075	0.0000
Al	0.13	0.0000	Al	0.0258	0.0000
Mn	1.02	0.0000	Mn	0.0982	0.0000
Si	15.63	0.0000	Si	2.9314	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	33.23	0.0000	O	10.9427	0.0000
Total	93.72			18.9427	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9314		0.0000
Al(IV)	0.0258		0.0000
	Sum -->	2.9572	0.0000
Al(VI)	0.0000		0.0000
Ti	0.0000		0.0000
Cr	0.0000		0.0000
	Sum -->	0.0000	0.0000
Fe	2.0347		0.0000
Mg	0.0002		0.0000
Ca	2.9075		0.0000
Mn	0.0982		0.0000
	Sum -->	5.0405	0.0000
O	10.9427		0.0000
	Sum -->	10.9427	0.0000

JOB TITLE: GARNETS

Label: B2-7 GAR

Analysis Number: 7

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.00	0.0000	Na	0.0002	0.0000
K	0.01	0.0000	K	0.0008	0.0000
Mg	0.00	0.0000	Mg	0.0000	0.0000
Fe	21.93	0.0000	Fe	2.0543	0.0000
Ca	22.06	0.0000	Ca	2.8788	0.0000
Al	0.14	0.0000	Al	0.0264	0.0000
Mn	1.11	0.0000	Mn	0.1057	0.0000
Si	15.75	0.0000	Si	2.9335	0.0000
Ti	0.00	0.0000	Ti	0.0000	0.0000
Cr	0.00	0.0000	Cr	0.0003	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	33.48	0.0000	O	10.9460	0.0000
Total	94.48			18.9460	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9335		0.0000
Al(IV)	0.0264		0.0000
	Sum -->	2.9599	0.0000
Al(VI)	0.0000		0.0000
Ti	0.0000		0.0000
Cr	0.0003		0.0000
	Sum -->	0.0003	0.0000
Fe	2.0543		0.0000
Mg	0.0000		0.0000
Ca	2.8788		0.0000
Mn	0.1057		0.0000
	Sum -->	5.0388	0.0000
O	10.9460		0.0000
	Sum -->	10.9460	0.0000

JOB TITLE: GARNETS

Label: B3-3 DIOP? Analysis Number: 8

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.00	0.0000	Na	0.0000	0.0000
K	0.00	0.0000	K	0.0007	0.0000
Mg	0.00	0.0000	Mg	0.0000	0.0000
Fe	21.36	0.0000	Fe	1.9633	0.0000
Ca	22.11	0.0000	Ca	2.8323	0.0000
Al	0.67	0.0000	Al	0.1269	0.0000
Mn	1.26	0.0000	Mn	0.1174	0.0000
Si	16.16	0.0000	Si	2.9537	0.0000
Ti	0.04	0.0000	Ti	0.0048	0.0000
Cr	0.01	0.0000	Cr	0.0010	0.0000
F	0.03	0.0000	F	0.0078	0.0000
O	34.36	0.0000	O	11.0219	0.0000
Total	96.01			19.0298	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9537		0.0000
Al(IV)	0.0463		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	0.0806		0.0000
Ti	0.0048		0.0000
Cr	0.0010		0.0000
	Sum -->	0.0864	0.0000
Fe	1.9633		0.0000
Mg	0.0000		0.0000
Ca	2.8323		0.0000
Mn	0.1174		0.0000
	Sum -->	4.9129	0.0000
O	11.0219		0.0000
	Sum -->	11.0219	0.0000

JOB TITLE: GARNETS

Label: B3-4 DIOP? Analysis Number: 9

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0027	0.0000
K	0.00	0.0000	K	0.0007	0.0000
Mg	0.00	0.0000	Mg	0.0000	0.0000
Fe	20.72	0.0000	Fe	1.9040	0.0000
Ca	22.29	0.0000	Ca	2.8539	0.0000
Al	0.80	0.0000	Al	0.1531	0.0000
Mn	1.28	0.0000	Mn	0.1192	0.0000
Si	16.17	0.0000	Si	2.9550	0.0000
Ti	0.11	0.0000	Ti	0.0116	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.13	0.0000	F	0.0359	0.0000
O	34.48	0.0000	O	11.0410	0.0000
Total	96.00			19.0769	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9550		0.0000
Al(IV)	0.0450		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	0.1081		0.0000
Ti	0.0116		0.0000
Cr	0.0000		0.0000
	Sum -->	0.1196	0.0000
Fe	1.9040		0.0000
Mg	0.0000		0.0000
Ca	2.8539		0.0000
Mn	0.1192		0.0000
	Sum -->	4.8770	0.0000
O	11.0410		0.0000
	Sum -->	11.0410	0.0000

JOB TITLE: UNKNOWN GRAIN
Label: B4-2 DIOP　　　　Analysis Number: 1

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0030	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	0.07	0.0000	Mg	0.0133	0.0000
Fe	2.11	0.0000	Fe	0.1746	0.0000
Ca	24.42	0.0000	Ca	2.8150	0.0000
Al	10.94	0.0000	Al	1.8728	0.0000
Mn	1.40	0.0000	Mn	0.1180	0.0000
Si	18.07	0.0000	Si	2.9736	0.0000
Ti	0.27	0.0000	Ti	0.0258	0.0000
Cr	0.04	0.0000	Cr	0.0040	0.0000
F	0.18	0.0000	F	0.0450	0.0000
O	41.41	0.0000	O	11.9359	0.0000
Total	98.93			19.9809	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9736		0.0000
Al(IV)	0.0264		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	1.8464		0.0000
Ti	0.0258		0.0000
Cr	0.0040		0.0000
	Sum -->	1.8761	0.0000
Fe	0.1746		0.0000
Mg	0.0133		0.0000
Ca	2.8150		0.0000
Mn	0.1180		0.0000
	Sum -->	3.1209	0.0000
O	11.9359		0.0000
	Sum -->	11.9359	0.0000

JOB TITLE: GARNETS

Label: B4-6 GAR

Analysis Number: 10

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0029	0.0000
K	0.01	0.0000	K	0.0011	0.0000
Mg	0.00	0.0000	Mg	0.0000	0.0000
Fe	21.90	0.0000	Fe	2.0180	0.0000
Ca	22.22	0.0000	Ca	2.8537	0.0000
Al	0.17	0.0000	Al	0.0322	0.0000
Mn	1.20	0.0000	Mn	0.1124	0.0000
Si	16.25	0.0000	Si	2.9769	0.0000
Ti	0.02	0.0000	Ti	0.0021	0.0000
Cr	0.01	0.0000	Cr	0.0007	0.0000
F	0.02	0.0000	F	0.0049	0.0000
O	34.18	0.0000	O	10.9931	0.0000
Total	95.99			18.9980	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9769		0.0000
Al(IV)	0.0231		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	0.0091		0.0000
Ti	0.0021		0.0000
Cr	0.0007		0.0000
	Sum -->	0.0120	0.0000
Fe	2.0180		0.0000
Mg	0.0000		0.0000
Ca	2.8537		0.0000
Mn	0.1124		0.0000
	Sum -->	4.9840	0.0000
O	10.9931		0.0000
	Sum -->	10.9931	0.0000

JOB TITLE: GARNETS

Label: B4-7 GAR

Analysis Number: 11

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0016	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	0.01	0.0000	Mg	0.0017	0.0000
Fe	21.88	0.0000	Fe	2.0270	0.0000
Ca	22.11	0.0000	Ca	2.8539	0.0000
Al	0.17	0.0000	Al	0.0320	0.0000
Mn	1.14	0.0000	Mn	0.1071	0.0000
Si	16.16	0.0000	Si	2.9757	0.0000
Ti	0.00	0.0000	Ti	0.0004	0.0000
Cr	0.01	0.0000	Cr	0.0006	0.0000
F	0.01	0.0000	F	0.0030	0.0000
O	34.00	0.0000	O	10.9911	0.0000
Total	95.49			18.9941	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9757		0.0000
Al(IV)	0.0243		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	0.0078		0.0000
Ti	0.0004		0.0000
Cr	0.0006		0.0000
	Sum -->	0.0088	0.0000
Fe	2.0270		0.0000
Mg	0.0017		0.0000
Ca	2.8539		0.0000
Mn	0.1071		0.0000
	Sum -->	4.9896	0.0000
O	10.9911		0.0000
	Sum -->	10.9911	0.0000

JOB TITLE: GARNETS

Label: B4-8 GAR

Analysis Number: 12

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.00	0.0000	Na	0.0000	0.0000
K	0.01	0.0000	K	0.0011	0.0000
Mg	0.01	0.0000	Mg	0.0015	0.0000
Fe	21.97	0.0000	Fe	2.0292	0.0000
Ca	22.08	0.0000	Ca	2.8421	0.0000
Al	0.17	0.0000	Al	0.0331	0.0000
Mn	1.15	0.0000	Mn	0.1081	0.0000
Si	16.25	0.0000	Si	2.9835	0.0000
Ti	0.01	0.0000	Ti	0.0015	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.00	0.0000	F	0.0000	0.0000
O	34.12	0.0000	O	11.0009	0.0000
Total	95.78			19.0009	

Mineral: GARNET
STANDARD GARNET
X(3) Y(2) Z(3) Oxy(12)
Fixed cation sum

	Cation Number		Error
Si	2.9835		0.0000
Al(IV)	0.0165		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	0.0166		0.0000
Ti	0.0015		0.0000
Cr	0.0000		0.0000
	Sum -->	0.0181	0.0000
Fe	2.0292		0.0000
Mg	0.0015		0.0000
Ca	2.8421		0.0000
Mn	0.1081		0.0000
	Sum -->	4.9808	0.0000
O	11.0009		0.0000
	Sum -->	11.0009	0.0000

JOB TITLE: EPIDOTES

Label: A1-4 UNK

Analysis Number: 1

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.00	0.0000	Na	0.0010	0.0000
K	0.00	0.0000	K	0.0006	0.0000
Mg	0.00	0.0000	Mg	0.0000	0.0000
Fe	9.81	0.0000	Fe	0.8465	0.0000
Ca	16.50	0.0000	Ca	1.9835	0.0000
Al	12.17	0.0000	Al	2.1735	0.0000
Mn	0.05	0.0000	Mn	0.0047	0.0000
Si	17.40	0.0000	Si	2.9841	0.0000
Ti	0.06	0.0000	Ti	0.0059	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.01	0.0000	F	0.0030	0.0000
O	40.11	0.0000	O	12.0755	0.0000
Total	96.13			20.0786	

Mineral: EPIDOTE

STANDARD EPIDOTE

X(2) Y(3) Z(3) (O, OH, F)13

Fixed cation sum

	Cation Number		Error
Si	2.9841		0.0000
Al(IV)	0.0159		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	2.1576		0.0000
Fe	0.8465		0.0000
Ti	0.0059		0.0000
	Sum -->	3.0101	0.0000
Ca	1.9835		0.0000
Mn	0.0047		0.0000
	Sum -->	1.9883	0.0000
O	12.0755		0.0000
F	0.0030		0.0000
	Sum -->	12.0786	0.0000

JOB TITLE: EPIDOTES

Label: A2-5 EPID

Analysis Number: 2

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0022	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	0.03	0.0000	Mg	0.0052	0.0000
Fe	4.05	0.0000	Fe	0.3381	0.0000
Ca	17.08	0.0000	Ca	1.9879	0.0000
Al	15.43	0.0000	Al	2.6682	0.0000
Mn	0.05	0.0000	Mn	0.0042	0.0000
Si	17.96	0.0000	Si	2.9829	0.0000
Ti	0.12	0.0000	Ti	0.0114	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.07	0.0000	F	0.0162	0.0000
O	42.31	0.0000	O	12.3268	0.0000
Total	97.11			20.3430	

Mineral: EPIDOTE
STANDARD EPIDOTE
X(2) Y(3) Z(3) (O, OH, F)13
Fixed cation sum

	Cation Number		Error
Si	2.9829		0.0000
Al(IV)	0.0171		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	2.6511		0.0000
Fe	0.3381		0.0000
Ti	0.0114		0.0000
	Sum -->	3.0006	0.0000
Ca	1.9879		0.0000
Mn	0.0042		0.0000
	Sum -->	1.9920	0.0000
O	12.3268		0.0000
F	0.0162		0.0000
	Sum -->	12.3430	0.0000

JOB TITLE: EPIDOTES

Label: A3-3 EPI? Analysis Number: 3

Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0013	0.0000
K	0.00	0.0000	K	0.0000	0.0000
Mg	0.00	0.0000	Mg	0.0000	0.0000
Fe	9.66	0.0000	Fe	0.8356	0.0000
Ca	16.60	0.0000	Ca	2.0005	0.0000
Al	12.10	0.0000	Al	2.1666	0.0000
Mn	0.05	0.0000	Mn	0.0040	0.0000
Si	17.36	0.0000	Si	2.9863	0.0000
Ti	0.03	0.0000	Ti	0.0033	0.0000
Cr	0.03	0.0000	Cr	0.0024	0.0000
F	0.07	0.0000	F	0.0188	0.0000
O	40.02	0.0000	O	12.0733	0.0000
Total	95.94			20.0921	

Mineral: EPIDOTE
STANDARD EPIDOTE
X(2) Y(3) Z(3) (O, OH, F)13
Fixed cation sum

	Cation Number		Error
Si	2.9863		0.0000
Al(IV)	0.0137		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	2.1529		0.0000
Fe	0.8356		0.0000
Ti	0.0033		0.0000
	Sum -->	2.9918	0.0000
Ca	2.0005		0.0000
Mn	0.0040		0.0000
	Sum -->	2.0045	0.0000
O	12.0733		0.0000
F	0.0188		0.0000
	Sum -->	12.0921	0.0000

JOB TITLE: EPIDOTES

Label: C4-1 EPI

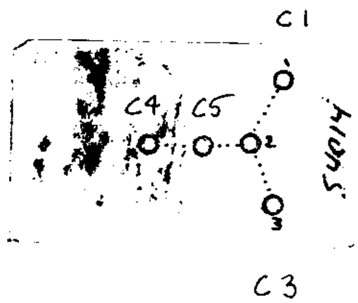
Analysis Number: 4

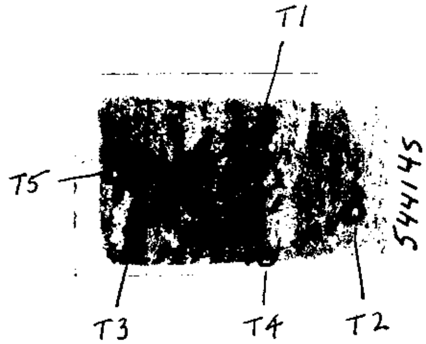
Elem Name	Elem Wt %	Std Error	Ion Label	Ion Number	Std Error
Na	0.01	0.0000	Na	0.0014	0.0000
K	0.01	0.0000	K	0.0007	0.0000
Mg	0.02	0.0000	Mg	0.0046	0.0000
Fe	4.28	0.0000	Fe	0.3592	0.0000
Ca	16.88	0.0000	Ca	1.9739	0.0000
Al	15.24	0.0000	Al	2.6461	0.0000
Mn	0.11	0.0000	Mn	0.0093	0.0000
Si	17.93	0.0000	Si	2.9919	0.0000
Ti	0.13	0.0000	Ti	0.0128	0.0000
Cr	0.00	0.0000	Cr	0.0000	0.0000
F	0.02	0.0000	F	0.0062	0.0000
O	42.10	0.0000	O	12.3263	0.0000
Total	96.74			20.3324	

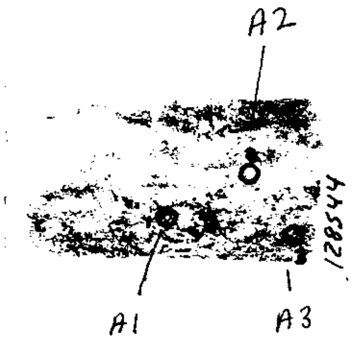
Mineral: EPIDOTE
STANDARD EPIDOTE
X(2) Y(3) Z(3) (O, OH, F)13
Fixed cation sum

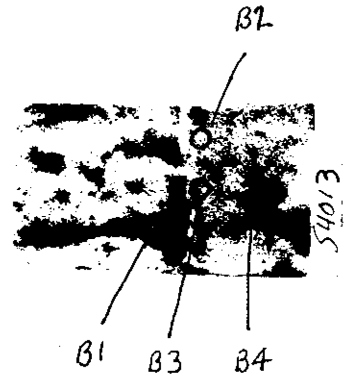
	Cation Number		Error
Si	2.9919		0.0000
Al(IV)	0.0081		0.0000
	Sum -->	3.0000	0.0000
Al(VI)	2.6380		0.0000
Fe	0.3592		0.0000
Ti	0.0128		0.0000
	Sum -->	3.0101	0.0000
Ca	1.9739		0.0000
Mn	0.0093		0.0000
	Sum -->	1.9831	0.0000
O	12.3263		0.0000
F	0.0062		0.0000
	Sum -->	12.3324	0.0000

Analysis areas









TECK EXPLORATION LTD

Quito, Ecuador March 8, 1994

Talis Kalnins
~~Thalis Kalinis~~
Geological Survey Branch
Ministry of Energy, Mines and Petroleum Resources
Sidney, B.C.

In response to your request for more detail information for the DOROTHY GROUP ASSESSMENT REPORT I have put together the following amendments to the report in corporation with Bruce Downing in Teck Exploration Ltd.'s Vancouver office.

DOROTHY ASSESSMENT AMENDMENTS

1: The silt location are all on the SAMPLE LOCATION MAP attached to the report submitted October 6, 1993.

2: Silt sample procedure: The silt samples were collected from the banks of the creek with a shovel and screened with a minus 40 mesh screen. The minus 40 mesh fractions were put in a standard gusset kraft bag and sent to Chemex Labs. for gold geochemical and ICP analysis.

3: Soil sample procedure: The samples were collected by shovel and stored in a standard gusset kraft bag. They were sent to Chemex Labs. for gold geochemical and ICP analysis. The soil samples were collected in two areas, Glacier Cirque and along the ridge from Glacier Saddle to the South Ridge.

The Glacier Cirque is covered by glacial moraine material. This material is coarse (up to >1 m), angular to subangular material with limited minus 40 mesh material in the southern ¾ parts of the grid and poorly developed soil horizons in the northern ¼ part of the grid. The moraine fines are considered to be identical to talus fines. All the samples in the western ¾ part of the grid collected fines at a depth of 10 to 50 cm. The samples from the northern ¼ part of the grid were a mix of fines and poorly developed B-horizon which were sampled at a depth of 10 to 30 cm.

The Glacier Saddle and the South Ridge area covered by coarse (5-50 cm), angular talus. All the soil samples from the two contour lines were of talus fines collected at a depth between 20 and 100 cm.

4: Rock sample procedure: Except for the samples of mica-garnet schist from the Glacier Saddle, all of the rock samples from the property were floats. However, both float and outcrop samples were grab samples.

5: Rock sample description: The collect rock samples from the property can be divided into groups depending on their location.

Glacier Cirque west: This is the area around the semi massive to massive sulphide boulder train. The samples are dark green and fine grained floats with pervasive chlorite with or without patchy, locally pervasive epidote and patchy and banded garnet, believed to be grossular. Mineralization is disseminated sphalerite, pyrite and pyrrhotite with minor chalcopyrite and galena. Mineralization varies from 1 to 3% to massive in bands up to 40 cm thick associated with garnet bands. The massive banded sulphides and garnet can be multi-layered, and both band types are discontinuous with less than 50 cm's of continuation.

Glacier Cirque east: This area is dominated by manganese stained quartz vein floats which can contain galena and sphalerite mineralization. In addition, there are minor amounts of mineralized chlorite±epidote±garnet floats identical to the mineralized floats in the western part of the Cirque.

Glacier Creek: This valley is dominated by floats of quartz veins with up to 50% fine to medium grained pyrite in pyroclastics (coarse lapilli tuff).

Glacier Saddle: Grey, fine grained mica (muscovite) schist with up to 5% disseminated dark red, coarse garnet (grossular).

6: <u>Whole rock & thin section samples:</u> Eight samples of the mica-garnet schist from the Glacier Saddle were collected for whole rock samples to possible identify the host rock of this intense metamorphosed roof pendant. These are different from the thin section sampled described below.

Four semi to massive mineralized samples from Glacier Cirque were submitted for thin section and mineralogical description. These same samples were also used in the fluid inclusion study and electron scanning microprobe analysis.

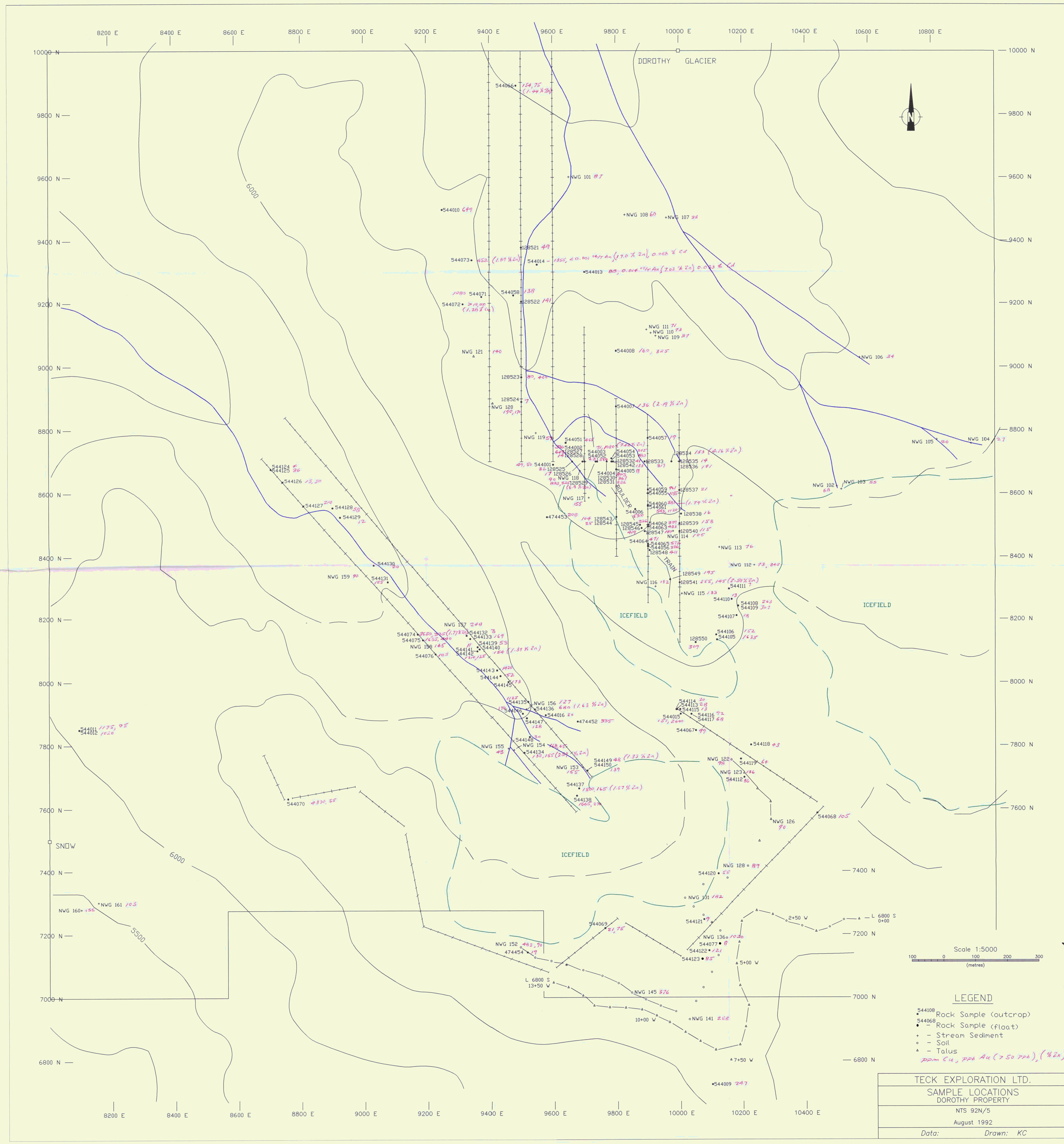
7: <u>Geochemical maps:</u> Gold and copper geochemical values have been plotted on the two enclosed maps.

Please let me know if you want a description of each rock samples individually, or if other additional data is required for this assessment report.

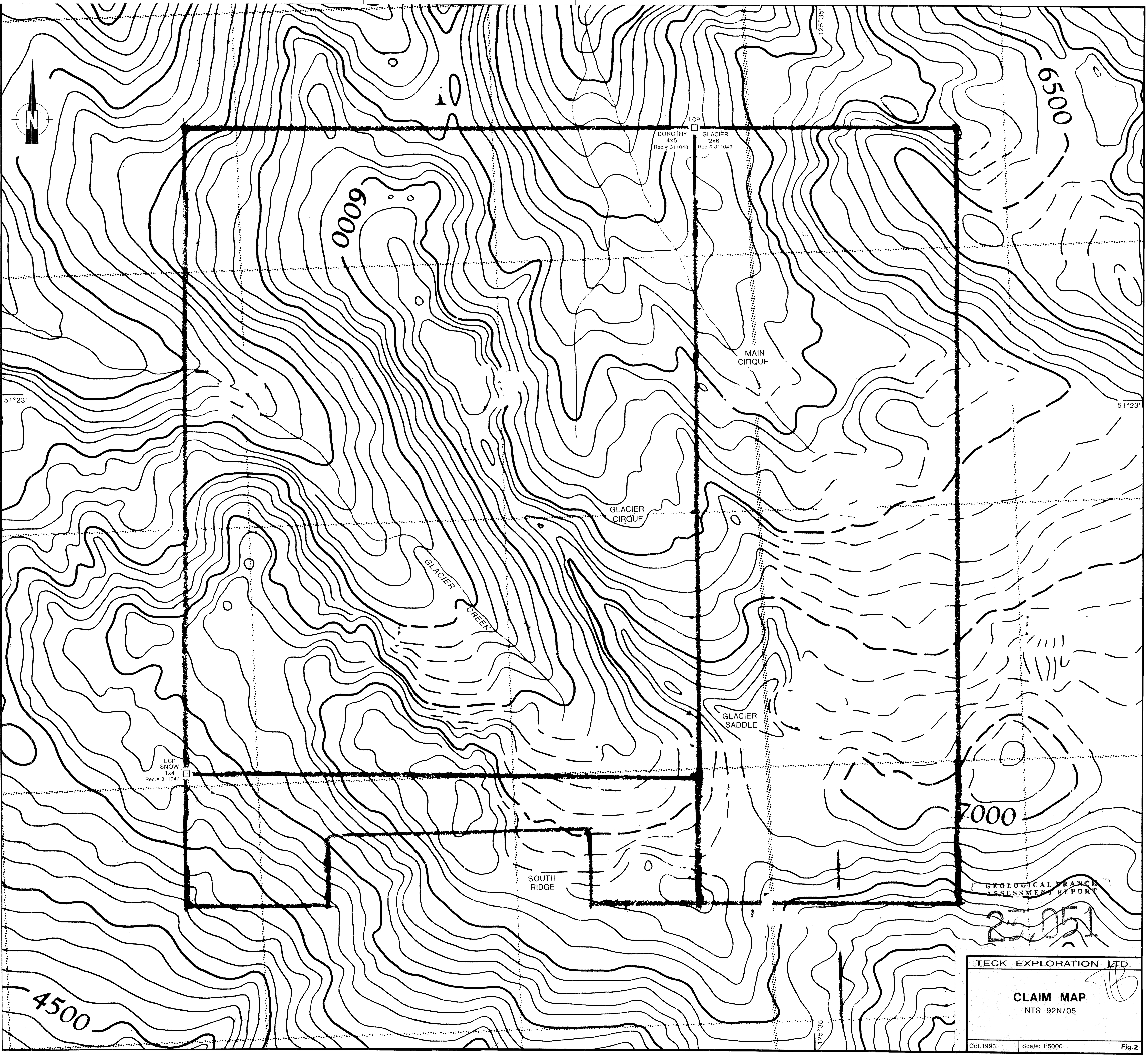
Yours truly

Tor Brøland, M.Sc., P.Geo.
Project Geologist

/tb


DOROTHY GLACIER
ICEFIELD
ICEFIELD
ICEFIELD
SNOW
BOULDER TRAIN
6000
6000
5500
8200 E
8400 E
8600 E
8800 E
9000 E
9200 E
9400 E
9600 E
9800 E
10000 E
10200 E
10400 E
10600 E
10800 E
10000 N
9800 N
9600 N
9400 N
9200 N
9000 N
8800 N
8600 N
8400 N
8200 N
8000 N
7800 N
7600 N
7400 N
7200 N
7000 N
6800 N
L 6800 S 0+00
2+50 W
5+00 W
7+50 W
10+00 W
L 6800 S 13+50 W
Scale 1:5000
100 0 100 200 300
(metres)
LEGEND
544108 Rock Sample (outcrop)
544068 – Rock Sample (float)
– Stream Sediment
– Soil
– Talus
ppm Cu, ppb Au (> 50 ppb), (% Zn)
TECK EXPLORATION LTD.
SAMPLE LOCATIONS
DOROTHY PROPERTY
NTS 92N/5
August 1992
Data:
Drawn: KC

A.R. 23051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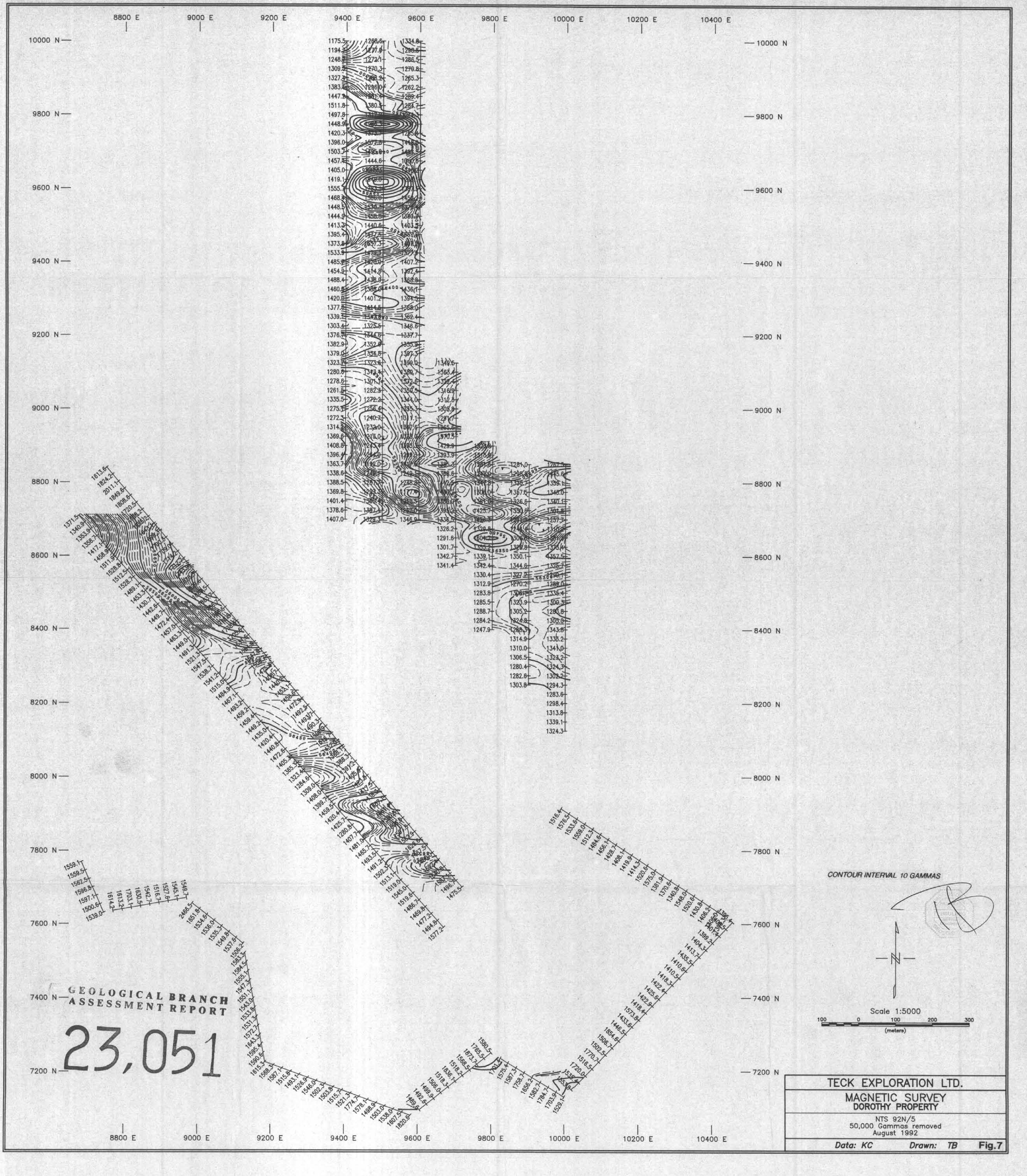
125°35'
LCP
DOROTHY
4x5
Rec.# 311048
GLACIER
2x6
Rec.# 311049
6000
6500
MAIN
CIRQUE
51°23'
51°23'
GLACIER
CIRQUE
GLACIER
CREEK
GLACIER
SADDLE
LCP
SNOW
1x4
Rec.# 311047
SOUTH
RIDGE
7000
4500
125°35'
GEOLOGICAL BRANCH
ASSESSMENT REPORT
23,051
TECK EXPLORATION LTD.
CLAIM MAP
NTS 92N/05
Oct.1993
Scale: 1:5000
Fig.2


8800 E
9000 E
9200 E
9400 E
9600 E
9800 E
10000 E
10200 E
10400 E
10000 N
9800 N
9600 N
9400 N
9200 N
9000 N
8800 N
8600 N
8400 N
8200 N
8000 N
7800 N
7600 N
7400 N
7200 N
CONTOUR INTERVAL 10 GAMMAS
Scale 1:5000
100
0
100
200
300
(meters)
GEOLOGICAL BRANCH
ASSESSMENT REPORT
23,051
TECK EXPLORATION LTD.
MAGNETIC SURVEY
DOROTHY PROPERTY
NTS 92N/5
50,000 Gammas removed
August 1992
Data: KC
Drawn: TB
Fig.7