

Report for Assessment Work Credit

on

Trenching and Drilling Programmes

MORRISON AND HEARNE HILL PROPERTY

[Work was Done on Ellen 1-16 Claims]

(September 1999 – August 2000)

OMINECA MINING DIVISION
BABINE LAKE AREA, BC

(Volume 1 of 4)

NTS 93-M/1W

Latitude 55°11'N

Longitude 126°18'W

Owner of Claims:

PACIFIC BOOKER MINERALS INC.

10th Floor – 609 West Hastings Street
Vancouver, BC V6B 4W4

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

Date Submitted:
4 December, 2000

Operator:
(same)

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26,410 1/4

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(M0 00 03 - M0 00 06 Volume 2)
(M0 00 07 - M0 00 10 Volume 3)
(M0 00 11 - M0 00 15 Volume 4)

Recommendations:

Recommendations for future exploration on the Morrison property are as follows:

1. Compile the data from the 2000 field season into a computer database. Combine the new data with Noranda's database to make a geological model of the deposit. Complete an in-house scoping study including an ore resource estimate using computer generated ore blocks.
2. Upon a positive outcome of the scoping study, plan a large drilling programme over the deposit. This phase of work would include a strategic drill programme to delineate high-grade areas within the deposit and a systematic programme using a grid patten, possibly within 50m centers to define the whole deposit.

Introduction

This report describes results of trenching and diamond drilling programmes at the Morrison porphyry copper gold silver deposit which is currently being explored by Pacific Booker Minerals under an option agreement with Noranda Corporation. The basic physiographic details of the claim group are:

Location and Access

The Morrison deposit [Ellen 1-16 claims] is located in the Babine Lake region of the Intermontane Belt of central British Columbia (Fig. 1). Situated at latitude 55° 11' N and longitude 126° 18' W. The Morrison/Hearne Hill property is 30 kms due north of the village of Granisle which was originally built to service the Granisle and Bell mines.

The Granisle mine ceased production in 1982 and all surface facilities have been removed. Production ceased at the Bell mine in 1992 and the minesite has been decommissioned.

Access from the rest of BC is by means of paved provincial highway 321 (Topley - Granisle) to Michel Bay. Then by barge (no charge) across Babine Lake to Nosebay (approx. 20 minutes). A network of main haulage logging roads (principally the Hagen along the east side of Babine Lake) gives access to the Morrison property (approx. 38 road kms from the ferry).

Topography

The Babine Lake region forms part of the rolling uplands of the Nechako Plateau within the Intermontane Belt of central British Columbia (Fig. 1). Oligocene to Recent block faulting dissected the region into a basin and range morphology consisting of north-westerly trending ridges and valleys. The major trenches are filled with long, narrow and deep lakes, the largest of which is Babine Lake, Morrison Lake lies to the northwest of Hatchery Arm of Babine Lake and occupies the same valley. Elevations range from 733m on the shore of Morrison Lake, (i.e. in the basin) to 1380m on Hearne Hill (i.e. the Range). The eroded scarp of the Morrison Fault forms the western flank of the Morrison graben.

Claim Details

The Ellen 1-16 claims on which the trenching and drilling programmes were done are shown on Figure 2.

The remaining claims which comprise the Morrison - Hearne Hill property are shown in the following table:

Claim Name	Tenure No.	Current Expiry Date	New Expiry Date
Hearne 1	242812	September 15, 2000	September 15, 2007
Hearne 2	242813	September 15, 2000	September 15, 2007
Ellen 1	243847	September 15, 2000	September 15, 2007
Ellen 2	243848	September 15, 2000	September 15, 2007
Ellen 3	243849	September 15, 2000	September 15, 2007
Ellen 4	243850	September 15, 2000	September 15, 2007
Ellen 5	243851	September 15, 2000	September 15, 2007
Ellen 6	243852	September 15, 2000	September 15, 2007
Ellen 7	243853	September 15, 2000	September 15, 2007
Ellen 8	243854	September 15, 2000	September 15, 2007
Ellen 9	243855	September 15, 2000	September 15, 2007
Ellen 10	243856	September 15, 2000	September 15, 2007
Ellen 11	243857	September 15, 2000	September 15, 2007
Ellen 12	243858	September 15, 2000	September 15, 2007
Ellen 13	243859	September 15, 2000	September 15, 2007
Ellen 14	243860	September 15, 2000	September 15, 2007
Ellen 15	243861	September 15, 2000	September 15, 2007
Ellen 16	243862	September 15, 2000	September 15, 2007
Alva #1	243863	September 15, 2000	September 15, 2007
Alva #2	243864	September 15, 2000	September 15, 2007
Ellen #3 Fr	243879	September 15, 2000	September 15, 2007
Frances #25	244011	September 15, 2000	September 15, 2007
Frances #27	244012	September 15, 2000	September 15, 2007
Dull Axe #1	244266	September 15, 2000	September 15, 2007
Dull Axe #2	244267	September 15, 2000	September 15, 2007
She 13	244278	September 15, 2000	September 15, 2007
She 14	244279	September 15, 2000	September 15, 2007
Dyke #7 Fr	244320	September 15, 2000	September 15, 2007
Patch Fr	244326	September 15, 2001	September 15, 2007
Cub 200	341509	September 15, 2002	September 15, 2007
Cub 300	341510	September 15, 2002	September 15, 2007
Copper 200	341511	September 15, 2002	September 15, 2007
Copper 100	341512	September 15, 2002	September 15, 2007
Cub 100	341513	September 15, 2002	September 15, 2007
BB 1	341551	September 15, 2002	September 15, 2007
BB 2	341552	September 15, 2002	September 15, 2007
BB 3	341553	September 15, 2002	September 15, 2007
BB 4	341554	September 15, 2002	September 15, 2007
Hearne 3	347037	September 15, 2002	September 15, 2007
Hearne 4	347038	September 15, 2002	September 15, 2007
Hearne 5	347039	September 15, 2002	September 15, 2007
Hearne 6	347040	September 15, 2002	September 15, 2007
Hearne 7	347041	September 15, 2002	September 15, 2007
Hearne 8	347042	September 15, 2002	September 15, 2007
Hearne 9	347043	September 15, 2002	September 15, 2007
Hearne 10	347046	September 15, 2002	September 15, 2007
Hearne 11	347047	September 15, 2002	September 15, 2007
Hearne 12	348735	September 15, 2002	September 15, 2007
Hearne 13	348736	September 15, 2002	September 15, 2007
Dyke 1	360773	September 15, 2000	September 15, 2007
Dyke 2	360774	September 15, 2000	September 15, 2007
Dyke 3	360775	September 15, 2000	September 15, 2007
Dyke 4	360776	September 15, 2000	September 15, 2007
Dyke 5	360777	September 15, 2000	September 15, 2007

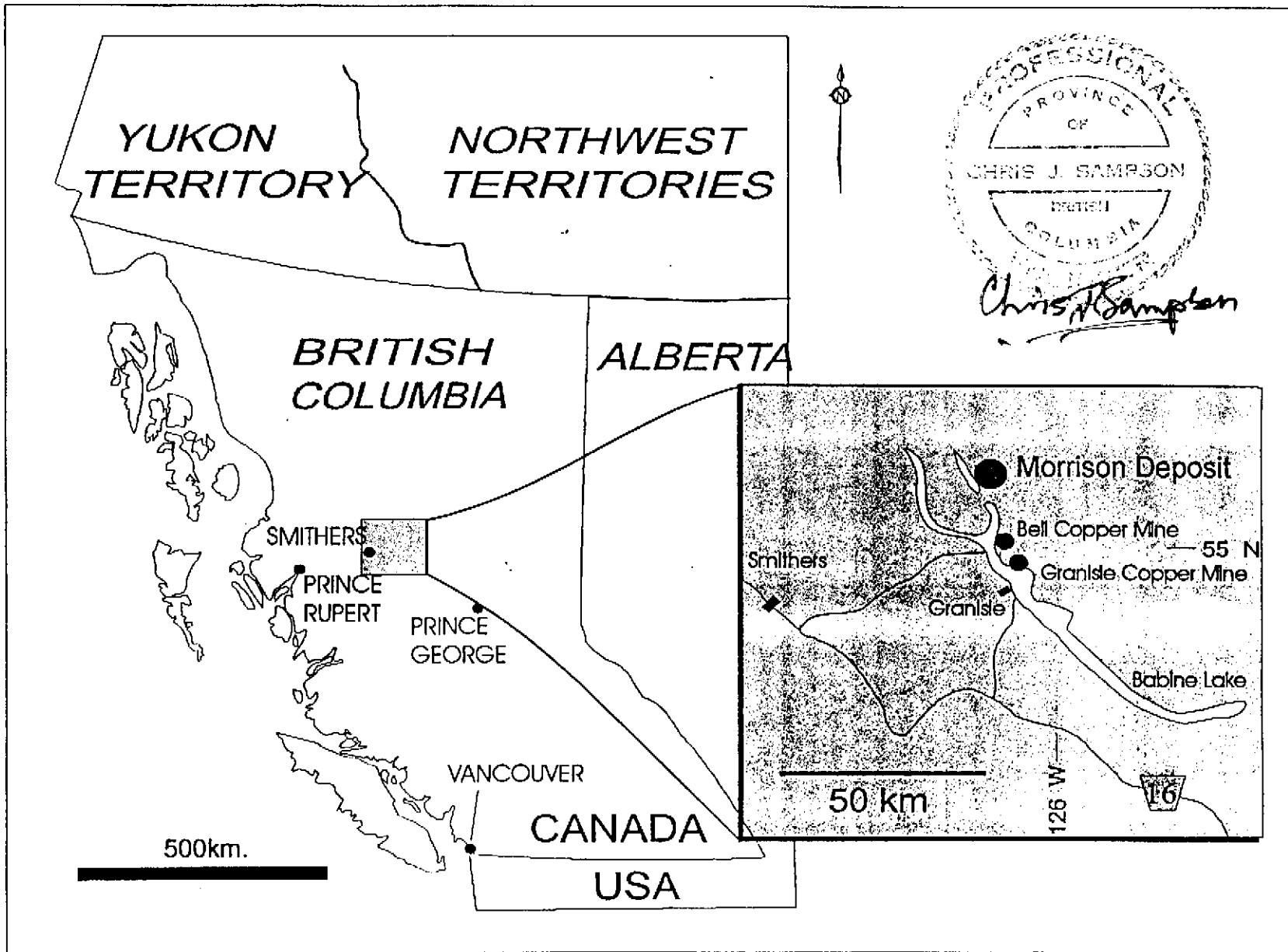
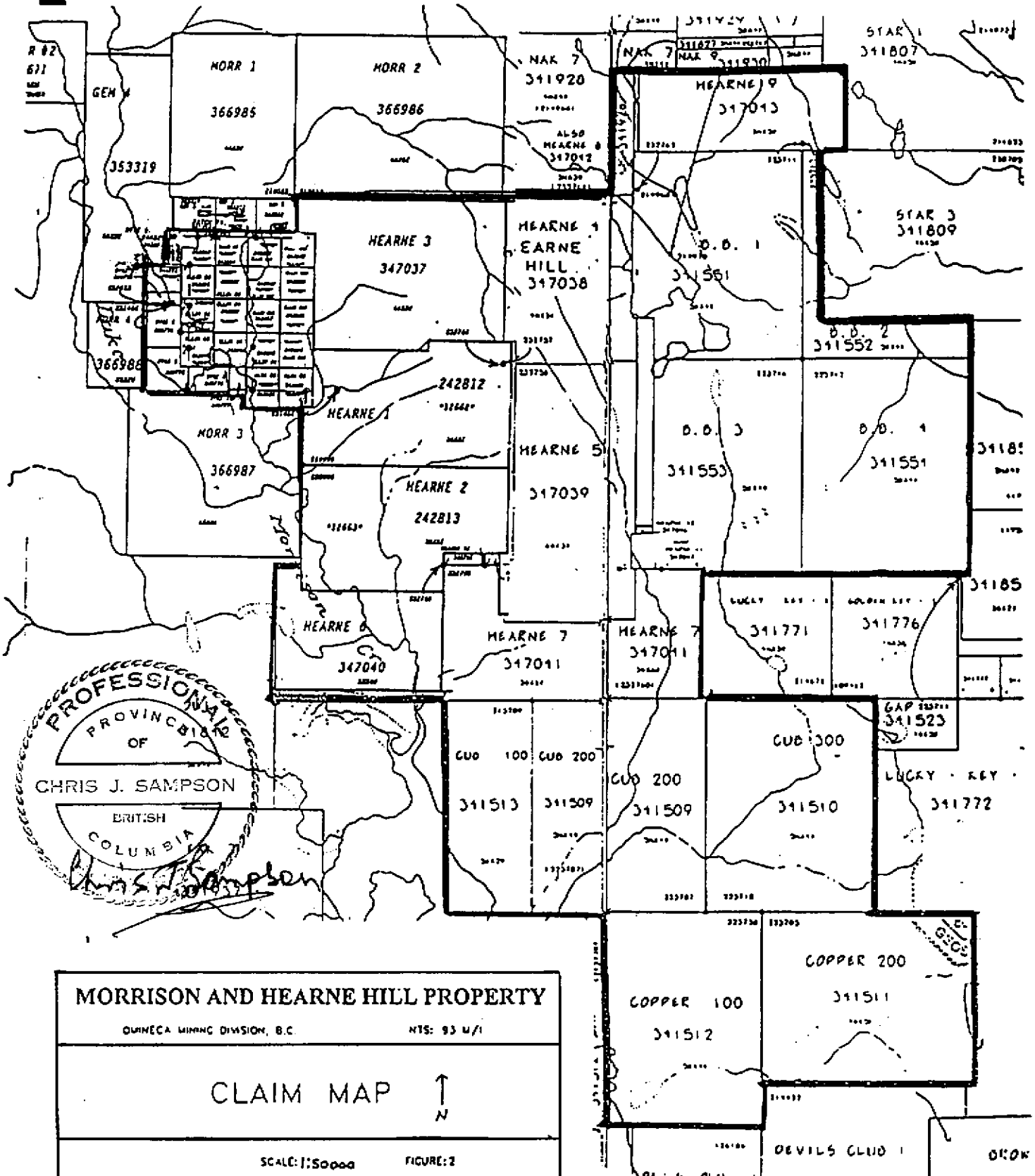


Figure 1: Location map MORRISON AND HEARNE HILL PROPERTY



PROFESSIONAL
 OF
 BRITISH COLUMBIA
 CHRIS J. SAMPSON
Chris J. Sampson

MORRISON AND HEARNE HILL PROPERTY
 QUINCY MINING DIVISION, B.C. NTS: 93 M/1
CLAIM MAP ↑
 N
 SCALE: 1:50000 FIGURE: 2

History of Exploration at Morrison

The Morrison Lake area was first explored in the early 1960s during the initial rush of exploration to the Babine region. Regional stream sediment sampling in 1962 by the Norpex Group of Noranda Exploration Company, Limited led to the discovery of the Morrison deposit in 1963 with critical early work by L. Saunders, R. Woolverton and D.A. Lowrie (Woolverton, 1964).

During the follow-up in 1963 of copper-anomalous stream sediments that were collected in 1962, copper-bearing BFP float and exposures were found by employees of Noranda Exploration Company, Limited in the stream that flows over the copper zone (Figs. 2, 3). Trenching of the thin overburden uncovered relatively unweathered chalcopyrite-bearing bedrock in large areas on both sides of the stream, where soil samples were anomalous.

Ninety-five diamond holes, most oriented east or west with dip 45 degrees, were drilled from 1963 to 1973. 65 holes were AEX diameter. The other 30 were BQ diameter. Induced polarization surveys were not very definite, because of very widespread pyrite. However, the BFP intrusions, including portions of the BFP plug, were known to contain abundant magnetite; therefore, magnetic surveys were used as a guide in the early drilling. By 1968, a sub-economic deposit had been outlined that consisted of two zones totalling about 55 million tonnes averaging 0.42 per cent copper. The zones are immediately northwest and southeast of the small central pond (Fig. 3), and their positions correspond closely to strong geochemical and magnetic anomalies.

Geological mapping done in 1963 and 1967 had indicated the possibility that the two zones might be parts of a single faulted deposit. Hydrothermal alteration studies initiated in 1967 showed that the deposit had well-defined biotite-chlorite zoning and that biotitization was very closely related to copper grades. Although data was sparse, biotitization in the large poorly tested area between the two known zones appeared to be widespread and strong, indicating that this area was probably underlain by additional +0.4 per cent copper mineralization. Drilling in 1970 to test the central area, succeeded in joining the portions of the faulted copper zone and increased the known tonnage of the deposit from about 55 to 86 million tonnes.

The Morrison copper zone and peripheral hydrothermally altered rocks have resisted erosion by glaciation more than the surrounding unaltered rocks. The altered rocks occur in an elevated, thinly mantled, roughly elliptical plateau 60-90 metres above the level of Morrison Lake. This plateau is bisected by a north-south gully carved along a fault, the east fault, and is surrounded by areas of shallow to very deep glacial overburden (Fig. 3).

It is significant that following the 1973 drill programme Noranda did no further active field work at Morrison. Pit design studies were carried out in 1988 and 1990 to establish whether Morrison could supply feed to the Bell Mine but no further drilling was done on the property until Booker Gold Exploration (now Pacific Booker) drilled 3 holes, No. 98-1, 2, 3 in 1998.

Regional Geology

The Morrison deposit is situated on the norther edge of the Skeena Arch in a region underlain by volcanic, clastic and epiclastic rocks ranging in age from Lower Jurassic Telkwa Formation to Lower Cretaceous Skeena Group. This sequence of rocks has been cut by a northwest trending series of faults that have created a long linear sequence of horsts and grabens. The rocks have been intruded by a variety of intermediate to felsic stocks, plugs and dykes of Eocene age (Richards, 1990).

During the Tertiary-Eocene period, BFP plugs and stocks of the Babine Igneous Suite were emplaced along major faults in a continental magmatic arc. Two ore bodies (Bell and Granisle) and numerous sub-economic deposits occur as porphyry-copper deposits which are temporally and spatially associated with the Babine Igneous Suite intrusions (Carson and Jambor, 1974).

Property Geology

Lithology

[The following description of the geology of the Morrison property is partially based on regional mapping by MacIntyre *et.al.* (1997-1), detailed petrographic studies by Carson and Jambor (1974) and field investigations by Pacific Booker Minerals Inc.]

Jurassic Sedimentary Rocks

Host rocks for the BFP intrusions at Morrison are siltstone, silty argillites and minor conglomerates of the Upper Jurassic Ashman formation.

In most localities on the Morrison property, the Ashman rocks are massive and strongly altered, and bedding is not visible. Where observable, bedding generally strikes northerly to northwesterly and dips steeply.

The siltstones and silty argillites are very fine to medium grained and consist largely of a heterogeneous mixture of detrital quartz, feldspars, and volcanic and sedimentary rock fragments. The over-all appearance and mineralogy of these rocks depend largely on their location in the Morrison alteration zones. Fawn or medium grey colours and observable clastic textures are characteristic of rocks with considerable introduced carbonate in the outer portions of the property. Some siltstones are poorly indurated; some are shaly. The rocks become darker greyish-green and fawn, indurated, chlorite-carbonate-rich greywackes and argillites as the copper zone is approached, and are dark grey and jet-black biotitized varieties in copper zone.

Conglomerates have been observed at a few localities such as in the creek near the old Noranda camp site. These conglomerates are light grey to fawn-coloured rocks that contain rounded pebbles of cherty, dacitic and andesitic rocks.

Throughout the entire property, the Hazelton sedimentary rocks are cut by abundant BFP dykes and sills.

Eocene Rhyodacite

Widespread rhyodacite dykes in the Babine area are believed to be co-magmatic with the BFP intrusions. At Morrison, light tan-coloured, medium- to fine-grained rhyodacite dykes with aplitic textures occur at a few localities. They are leucocratic rocks composed almost entirely of quartz, albite and K-feldspar. At some localities, the dykes have a fine to coarse breccia texture in which aplitic fragments are contained in a very fine grained siliceous matrix.

Eocene Biotite-Hornblende Plagioclase Porphyry (BFP)

Morrison BFP is similar to BFP at other Babine porphyry copper deposits. A complete description of this rock, including chemical and microprobe analyses, is given by Carson and Jambor (1974).

The main BFP pluton at Morrison is a faulted plug, with nearly vertical contacts, which occupies a north-westerly oriented elliptical area of 900 by 150-300 metres. Before faulting, the plug was roughly circular in section, with a diameter of about 500 metres. Numerous offshoots of the plug, many of which are northerly trending dykes or sills, occur everywhere in the Hazelton sedimentary rocks. The offshoots vary in width from less than 1 metre to greater than 500 metres. Most BFP contacts are sharp. Angular inclusions of siltstone have been observed in only a few localities.

Unaltered BFP is speckled with abundant 1/4 to 5-mm phenocrysts of plagioclase (zoned oligoclase-andesine), biotite and hornblende in a fine-grained matrix of the same materials as well as quartz and K-feldspar. Apatite and magnetite are common accessory minerals. At Morrison, all rock exposures are altered, and hornblende phenocrysts in particular have been largely replaced by hydrothermal chlorite or biotite. Rare phenocrysts of K-feldspar and quartz have been noted in some Babine porphyry deposits, but not at Morrison. Compositionally, Morrison BFP is equivalent to quartz diorite porphyry (dacite porphyry).

At Granisle, many phases of BFP intrusions are evident from cross-cutting relationships among slightly different-appearing types of BFP and from the occurrence of fragments of one type in another in breccia pipes (?) and intrusive breccias. Such features are seen most clearly during close examination of rock faces in the pit. At Morrison, the plug is known to contain a large number of phases of BFP. Their presence is indicated by the occurrence of varieties of BFP that have contrasting abundances of phenocrysts and of groundmass grain sizes. Some of these BFP variations occur over distances of only a few metres, and in a few cases intrusive contacts have been observed in drill cores.

Part of the variation in appearance of BFP is due to superimposed hydrothermal alteration. BFP in the chlorite-carbonate zone is typically a greenish grey speckled rock of phenocrysts of pale

grey plagioclase, pale green chloritized hornblende and books of unaltered brown biotite. In the weak, outer part of the biotite zoned, the rock is darker greyish green. In the inner, stronger biotitized part of the copper zone, BFP is dark grey to black, and speckled with distinct unaltered white plagioclase phenocrysts and books of black biotite.

Post-Mineral Andesite Dykes

Light green, very fine grained to aphanitic, weakly altered dykes ranging in width from 1/3 to 2 metres have been encountered in a few drill holes. The dykes are andesitic and contain widely scattered 1/2 to 1-mm phenocrysts of plagioclase, hornblende and biotite. These intrusions, possibly a late-stage, relatively mafic type of BFP, are barren of copper.

Structure

The Morrison deposit occupies the central part of a major graben that is a component of the regional northwesterly trending block-fault system of the Babine area (Carter, 1973; Richards, 1974). The western bounding fault is believed to be along Morrison Lake, and the eastern fault is about 0.8 km east of the property. Within this graben, Upper Jurassic Ashman formation, and the Cretaceous Sustut Group which crops out 3 km to the northwest of the Morrison deposit have been down-faulted and preserved from erosion.

The most prominent structure at Morrison is the north-westerly trending east fault, which bisects the BFP plug and copper zone (Fig. 3). The fault is apparently vertical and has a right-hand heave of approximately 300 metres. The vertical displacement, although unknown, is believed to be considerable. Rather than a single break, the East Morrison fault is a linear zone of parallel shears and fractures. The zone averages about 25 metres in width, but ranges from 50 metres in its central portion to only a few metres at its extremities.

Along its entire length, the Morrison fault is marked by intense clay-carbonate alteration and well-defined zones of carbonate-cemented gouge and breccia. North-westerly trending streaks and patches of clay-carbonate alteration found elsewhere in the BFP plug and surrounding rocks are believed to have developed along minor shears and fractures that formed along contacts and bedding planes during movements on the Morrison fault.

Mineralized fractures, 2 to 10 cm apart, are exposed in trenches and outcrops. The fractures have a great variety of orientations, but tend to dip steeply and trend northerly, parallel to the strike of the Ashman sedimentary rocks, the copper zone and the Morrison fault. However, at the northern end of the deposit, the strikes of both the copper zone and the more prominent fractures swing to the northeast and east.

Major fold structures have not been observed at Morrison. Although the strike of the sedimentary rocks appears to be mainly north-northwesterly, some argillaceous siltstones and conglomerates at the southern end of the property strike east-northeast to east-southeast and dip steeply. This suggests that the BFP plug may be localized in the north-northwesterly trending

isoclinal fold, the nose of which is at the southern end of the property.

Mineralization and Alteration

Copper Zone

The Morrison copper zone is a vertical annular cylinder that conforms to the shape of the BFP plug and is disrupted by the east and west faults. The copper zone is defined by external and internal boundaries that mark the limits of rocks which consistently grades greater than 0.2% copper. In most places, the external boundary is relatively sharp and copper content declines outward to less than 0.1 per cent within about 40 metres. However, along the western and northwestern edges of the copper zone, sporadic areas of + 0.3 per cent copper occur for several hundred metres beyond the 0.2 per cent copper boundary. The low-grade core averages between 0.15 and 0.2 per cent copper. Between the internal and external 0.2% isopleths, copper increases fairly regularly to form a higher-grade annulus. In the annulus, which is 15 to 150 metres wide, copper exceeds 0.5 per cent. Maximum grades over appreciable widths are about 0.7 per cent copper, and the average grade of the entire 0.3+ per cent zone is 0.42 per cent copper. Molybdenum averages approximately 0.01 per cent and gold and silver 0.3 gram per tonne and 3 grams per tonne respectively. Spotty occurrences of galena and sphalerite, in carbonate-cemented brecciated veins within and near the Morrison fault and in smaller parallel shears, contribute to relatively high, but uncommercial, values of lead and zinc.

At Morrison, all copper sulphides are primary. Chalcopyrite is the main copper-bearing mineral. It is distributed chiefly in fracture stockworks with or without quartz, but about 20 to 30 per cent of the mineral is disseminated in the BFP matrix and in peripheral sedimentary rocks.

Pyrite Halo

All rocks at Morrison contain anomalous quantities of pyrite (> 1 per cent) that contribute to an over-all high induced polarization response. Coarsely disseminated 1/2 - 5-mm crystals of pyrite are common in the inner parts of the halo, whereas 0.1- to 0.5-cm-wide stringers predominate in the outer portions.

The most pronounced concentrations of pyrite (5-15 per cent by volume) occur in three segments that surround the copper zone. The outer two thirds of the segments average only about 0.05 per cent copper. The eastern pyrite segment is very large. Pyrite content at its outer margin decreases abruptly to 1 to 2 per cent. However, in the smaller western segments, pyrite abundances decrease more gradually and zones of 3 to 5 per cent pyrite are common in the area that includes the large northerly trending BFP and rhyodacite dykes.

Sulphide Mineralogy and Zoning

Chalcopyrite and pyrite are the main sulphides at Morrison. Minor to moderate amounts of bornite at a few places in the copper zone contribute significantly to copper grades. However, most of the high-grade sections owe their copper content solely to chalcopyrite. Most of the

chalcopyrite occurs along thin seams and veinlets with or without quartz and biotite, but notable amounts of the sulphide are also finely disseminated in the BFP matrix and in sediments.

Very minor molybdenite occurs in some chalcopyrite-pyrite seams and as minute disseminated flakes in the copper zone, which averages about 0.01 per cent molybdenum.

Though pyrrhotite and marcasite occur in only minor quantities at Morrison, these minerals are more abundant than in other porphyry copper deposits. Pyrrhotite is almost exclusively in the pyrite halo, but the quantity present is unrelated to the percentage of pyrite present. Marcasite is most commonly associated with pyrite, arsenopyrite, galena, sphalerite, geocronite and boulangerite. These minerals occur with quartz and carbonate in small vuggy veinlets and pockets in minor faults and in the clay-carbonate-altered rocks of the fault zones.

Detailed polished-sections indicate that pyrite and chalcopyrite have a well-defined zonal relationship. Although pyrite predominates in the pyrite halo, the 0.2 per cent copper grade-line precisely marks a change in pyrite-to-chalcopyrite ratios; chalcopyrite consistently exceeds pyrite in samples only from the inside of this boundary. Although the absolute abundance of pyrite decreases toward the centre of the Morrison deposit, disseminated grains of the mineral persist throughout the copper zone and in the low-grade core.

Polished-section studies have shown also that, in addition to chalcopyrite and pyrite, magnetite and minor bornite are present in the low-grade-core of the deposit. Magnetite is confirmed to the low-grade core and the copper zone; that is, the area enclosed by the outer 0.2 per cent copper grade-line. The mineral is a finely disseminated original constituent of the BFP and the siltstones and is most abundant in the western segment of the copper zone. Many magnetite grains are partly altered to hematite, which seems to be most abundant at the outer 0.2 per cent boundary. No iron oxides have been observed in the pyrite halo.

Hydrothermal Alteration

Hydrothermal alteration at Morrison is similar to that at Granisle and other Babine porphyry copper deposits (Carson and Jambor, 1974). The copper deposit is within a centrally located biotite zone, the quality of which decreases outward. Surrounding the biotite zone is a chlorite-carbonate zone. Intense clay-carbonate alteration is associated predominantly with the faults and related shears.

Minor amounts of well-crystallized chlorite occur in the biotite zone, mainly as veinlets and crystal clusters. Finer, less strongly crystallized chlorite is common in the weak outer part of the biotite zone, and abundant chlorite that occurs mainly as pseudomorphs after hornblende characterizes the chlorite-carbonate zone.

As is evident from the above, the biotite-to-chlorite ratio increases as the copper zone is approached externally, and the crystallinity of both minerals also increases.

The three types of phenocrysts in BFP - biotite, hornblende and plagioclase - possessed distinctly different susceptibilities to alteration. Biotite phenocrysts were relatively stable and remained largely unaltered both in the chlorite-carbonate and biotite zones. Only in the most intensely biotitized rocks are phenocrysts partly replaced on their rims by finer hydrothermal biotite. In contrast to biotite, hornblende phenocrysts were very sensitive to hydro-thermal alteration. Their replacement in the central, copper-bearing area by hydrothermal biotite and in the peripheral areas by chlorite and carbonates, is the most diagnostic and useful feature of hydrothermal alteration at Morrison and all Babine deposits. Within the biotite zone of the Morrison deposit, residual primary hornblende as well as hydrothermal amphibole of the tremolite-actinolite series are common.

Plagioclase phenocrysts are flecked only weakly with kaolin, sericite and carbonate in the outermost part of the chlorite-carbonate zone. However, this feldspar destructive alteration increases in intensity inward to the inner chlorite-carbonate zone, where some crystals are completely replaced; others are partly replaced in irregular patches or along cleavages and compositional zones. In the carbonate-deficient parts of the inner biotite zone, most plagioclase is clear and unaltered. However, in some cases, unaltered phenocrysts occur adjacent to totally altered (sericite-kaolin-carbonate) phenocrysts.

K-feldspar has been observed in very minor amounts in quartz-chalcopyrite \pm biotite veinlets in the inner + 0.3 per cent copper portion of the copper zone. Its distribution coincides with the inner, stronger part of the biotite zone, which therefore corresponds to the classical potassic zones of other porphyry copper deposits.

Along faults and shears, clay-carbonate alteration is superimposed on the earlier biotitic and chloritic alterations. In the fault zones and at other localities of intense clay-carbonate alteration, biotite, hornblende and plagioclase phenocrysts and BFP matrix have been almost totally altered to kaolinite \pm montmorillonite, chlorite and mixtures of calcite, dolomite and, rarely, siderite. Pyrite is an additional alteration product of the mafic phenocrysts. At several localities where the streaks and patches of moderately intense clay-carbonate alteration are exposed in trenches, many can be seen to be parallel to the Morrison fault, to most BFP dyke contacts and to the overall strike of the Hazelton sedimentary rocks.

Disseminated fine-grained apatite is anomalously abundant in the BFP plug and in some large dykes. Veinlets and pockets of coarse apatite-biotite-bornite-calcopyrite, such as those that occur at Granisle, have not been found at Morrison. Gypsum has been observed at places in the copper zone. Very minor amounts of tourmaline were observed in thin sections of BFP and siltstone at four localities near the western edge the copper zone. Minor epidote is found in all parts of the property, but is most common in the outer chlorite-carbonate zone. Minor amounts of sericite are also present in most localities. Moderate amounts of sericite, accompanied by carbonates, occur in the southern third of the large rhyodacite dyke and in some siliceous sedimentary rocks in the southeastern part of the pyrite halo.

As is evident from the above, hydrothermal zoning at Morrison, like copper zoning, is relatively

uniform. Except for superimposed, structurally controlled clay-carbonate alteration, there are no significant reversals in the mineralogy.

Exploration Programmes

Trenching

During October, November 1999, and June - October, 2000 extensive programmes of trenching were done on the Morrison property. Various large backhoes (Kobelco mostly) were used to excavate and extend the trenches originally dug by bulldozer for Noranda Exploration - probably in 1964.

These old trenches had "sloughed in" and being originally excavated by bulldozer, they had not been successful in achieving continuous exposure of bedrock. The modern backhoe trenches provided a much more continuous exposure of bedrock - enabling copper and gold values to be sampled and assayed over entire trenched distances in some cases.

Initially the trenches were logged in 5m lengths. Lithology, alteration, fracture density were all observed plus estimates of chalcopyrite, bornite and pyrite content. Each 5m sample was then analysed for 30 elements by I.C.P. methods. Subsequently sampling intervals were changed to 10m lengths.

Location of the trenches are shown in Figure 3. Logs of mapping of the trenches and analytical certificates are shown in Appendix A. [Some analytical certificates date from after 31 August 2000 due to time delays in submitting samples for analysis. These results are included in this report because they are part of the overall data produced but they are not part of the assessment work in this report that is detailed in Statement of Costs for assessment work credit.]

Diamond Drilling

In October 1999 Pacific Booker drilled a vertical hole Mo-4 which was deepened as part of the year 2000 programme. Hole 99-3 was also deepened as part of the year 2000 programme.

The recent programme of drilling started 20 April 2000 and was completed 9 November 2000. Details of holes drilled by Pacific Booker since the start of its programme at Morrison up to 31 August 2000 are shown in the following table. All holes were drilled with NQ diameter, diamond drill equipment by Falcon Drilling of Prince George, BC. Core is stored at Pacific Bookers Camp at the property.

Hole	Easting	Northing	Azimuth	Dip	Total Depth (ft)	Total Depth (m)	Date of Drilling
MO-1	3000	3774	092	70	797	242.9	16-22 Jan 1998
MO-2	2950	3810	090	50	1275	388.	23-29 Jan. 1998
MO-3	3050	3866	090	45	334	101.8	30 Jan-4 Feb. 1998
The above holes for reference only, NOT included in the assessment report.							
ext.	3050	3866	090	45	1044	318.21	1-5 Aug. 2000
MO-4	3125	3870		90	1019	310.67	16-25 Oct. 2000
ext.	3126	3874		90	1491	454.46	20-27 Apr. 2000
MO-5	3010	3805	092	75	1447	441.05	28 Apr.-8 May, 2000
MO-6	3190	3932	090	78	1221	372.01	9-18 May, 2000
MO-7	3548	3394	270	77	1203	366.67	19 May-11 Jun. 2000
MO-8	3330	3564	270	70	1071	326.44	12-20 Jun. 2000
MO-9	3406	3205	-	90	1007	306.93	21-27 Jun 2000
MO-10	3390	3350	270	60	896	273.1	28 Jun-8 Jul 2000
MO-11	3410	3340	090	70	1077	328.27	10 Jul-16 Jul. 2000
MO-12	2985	3560	090	45	1116	340.16	6-15 Aug. 2000
MO-13	2985	3560	270	45	495	150.88	16-19 Aug. 2000
MO-14	3108	3445	090	50	997	303.89	20-27 Aug. 2000
MO-15	3490	3200	090	45	1026	312.73	28 Aug-5 Sept, 2000

In order to ensure accuracy of sampling and assaying, Pacific Booker maintained a quality control programme throughout the drilling:

- a. A geotechnical log of each hole was made which noted recoveries achieved in each 10 ft (3.05 m) section. This log also noted condition of drill core, i.e. amount of broken material present. *Generally core recovery using modern hydraulically driven, thin walled NQ drill rods was 100%. In fractured zones minor amounts of material were lost.*
- b. Core was split or sawn into two halves. One half was taken as a sample for assay (10 ft. Or 3.05

m lengths). The other half was replaced in the core box for reference

- c. The core samples were either assayed for copper and gold or analysed by I.C.P. for 30 elements.
- d. Pacific Booker commissioned CDN Resource Laboratories Ltd. To prepare copper standards. A set of gold standards were purchased from Rock Labs of Auckland, New Zealand. These standards were inserted in the material submitted for analysis to ensure the accuracy of assaying procedures. Blank core samples were also inserted randomly.

Drill logs and assay certificates are contained in Appendix B. Petrographic work by Vancouver Petrographics is detailed in Appendix C.

Results of the drilling programme are summarized as follows:

Deepening of hole Mo-98-3 completed Phase I of the drilling programme at the Morrison porphyry copper gold deposit.

The aims of the Phase I programme were outlined as follows:

1. Establish grade and continuity of copper values, using modern state of the art thin walled NQ hydraulically driven drill equipment, which achieves essentially 100% recovery. All previous drilling (95 holes) dates from 1963 to 1973. All of these holes were small diameter core size which resulted in inconsistent core recovery and made accurate assaying difficult. This necessitated Pacific Booker redrilling within the known porphyry deposit with modern equipment.
2. Establish gold and silver grades (Few of the original drill holes were assayed for these metals.)
3. Explore the depth of the copper/gold/silver bearing system. Historic drilling was by 45-degree angle, short holes, which had explored the system to a maximum depth of 500 vertical feet. (150 metres).

The Phase I programme adequately achieved its stated aims by successfully defining higher copper grades; establishing significant gold values within the known deposit and extending the system to increased depth with holes Mo-99-4 and Mo-00-9.

During the course of the Phase I drilling it became evident that the Morrison deposit had not been fully explored on the west, northwest and north sides.

Pacific Booker's initial Phase II programme was therefore extensive trenching, drilling and geophysics in these areas to locate and define the deposit boundaries. Mapping of alteration zoning with attendant mineralization was utilized to assist in defining the true size of the Morrison deposit. To date the Morrison deposit is open to depth and to the west, north and northwest.

The 11 holes comprising the Phase I programme are summarized in the following table. Locations are shown on Figure 3.

**MORRISON DEPOSIT
SUMMARY OF PHASE I DIAMOND DRILLING**

Drill hole	Azimuth	Dip Angle	Hole Length (metres)	Intercepts from (m)	To (m)	Length metres	Feet	Copper %	Gold grams/tonne	Silver grams/Tonne
Mo-98-1	90	-70	239.8	3.10	239.80	236.7	780	0.41	0.29	1.40
			<i>includes</i>	3.10	96.60	93.50	310	0.72	0.53	2.25
				26.50	34.60	8.10	30	1.03	0.96	3.47
Mo-98-2	90	-50	388.7	3.90	378.40	374.50	1230	0.50	0.24	1.62
			<i>includes</i>	86.90	285.10	198.20	650	0.61	0.29	1.91
				239.20	285.10	45.90	150	0.81	0.48	2.27
Mo-98-3	90	-50	318.8	3.00	266.99	263.99	866	0.51	0.27	2.44
			<i>includes</i>	3.00	101.80	98.80	325	0.60	0.27	1.73
				96.00	101.8	5.80	20	0.70	0.36	2.16
Mo-99-4		-90	454.46	4.25	454.46	450.21	1477	0.70	0.40	
			<i>includes</i>	85.06	170.43	85.37	280	0.97	0.53	
				200.46	228.35	27.89	92	0.98	0.49	
Mo-00-5	92	-75	441.05	2.80	288.72	285.92	938	0.50	0.45	2.85
			<i>includes</i>	200.00	265.00	65.00	210	0.65	0.79	
				212.00	240.00	28.00	90	0.80	1.02	
Mo-00-6	90	-78	372.01	3.00	372.01	369.01	1211	0.50	0.26	3.00
			<i>includes</i>	55.60	133.70	78.10	250	0.60	0.26	
				307.80	343.00	35.20	115	0.70	0.36	
Mo-00-7	270	-77	366.67	2.44	346.25	343.81	1128	0.44	0.20	1.52
			<i>includes</i>	174.4	340.0	165.60	543	0.56	0.25	
				312.0	340.0	28	92	0.64	0.25	
Mo-00-8	270	-70	326.44	16.15	326.44	310.29	1018	0.50	0.28	
			<i>includes</i>	42.06	142.64	100.6	330	0.61	0.20	
				206.64	310.27	103.63	340	0.48	0.46	
Mo-00-9		-90	306.93	2.13	306.93	304.80	1000	0.42	0.13	
			<i>includes</i>	200.2	249.0	48.8	160	0.64	0.18	
				233.8	249.0	15.2	50	0.92	0.26	
Mo-00-10	270	-60	273.10	8.20	273.10	264.90	869	0.22	0.14	
			<i>includes</i>	95.75	141.21	45.46	150	0.38		
Mo-00-11	090	-70	328.27	2.44	328.27	325.83	1069	0.51	0.18	
			<i>includes</i>	165.75	274.84	109.09	360	0.62		

Note: Figures in italics are higher grade intercepts included within the overall intercept.

Drilling in Phase II has focussed on defining the boundaries of the deposit. This required drilling either from the deposit out or from outside the boundaries into the deposit. Many of these holes, by definition, do not grade in the same range as those within the core areas of the deposit.

Summary of assay results from Diamond Drill Holes MO-12 to MO-15 are as follows:

DDH MO-00-12 to define the south edge of the central zone to the east
 from surface to 178.6 Metres (586 feet) .19% copper, .07 grams/tonne gold
 178.6 metres-340.16 metres (530.1 feet) .30% copper, .21 grams/tonne gold.

- DDH MO-00-13 same set up to define the south edge of the central zone to the west
from surface to 114.6 metres (376 feet) .13% copper, .04 grams/tonne gold,
114.6-150.88 metres barren
- DDH-MO-00-14 to further define the south area of the central zone.
From surface to 127.10 metres (417 feet) .09% copper, .04 grams/tonne gold
127.10-303.89 metres (580 feet) .35% copper .14 grams/tonne gold
- DDH MO-00-15 to further define the south edge of the central zone.
From surface to 273.10 metres (775 feet) /42% copper, .25
grams/tonne gold
273.1-312.73 metres (130 feet) .13% copper, .09 grams/tonne gold

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Certificate.

I, Christopher J. Sampson, of 2696 West 11th Avenue, Vancouver, BC, V6K 2L6, hereby certify that:

1. I am a graduate (1966) of the Royal School of Mines, London University, England with a Bachelor of Science degree (Honours) in Economic Geology.
2. I have practiced my profession of mining exploration for the past 34 years in Canada, Europe, United States, Central and South America. For the past 25 years I have been based in British Columbia.
3. I am a consulting geologist. I am a registered member in good standing of the Association of Professional Engineers of British Columbia.
4. This report is based on supervision of trenching and drilling programmes at the Morrison Property, BC.

Dated at Vancouver, British Columbia this 4th day of December, 2000.



Chris J. Sampson

Christopher J. Sampson, P. Eng.
Consulting Geologist

ITEMIZED COST STATEMENT FOR ASSESSMENT CREDIT

September 16, 1999 to August 31, 2000

Personnel	Consulting Engineer	16.50	days	7,500.00	
	Consulting Geologist	3.00	hours	288.00	
	Prospector	61.00	days	24,400.00	
	Geologists	279.00	days	83,380.00	
	Field Assistants	134.00	days	19,754.80	
	Coresplitters	19.00	days	2,850.00	
	Camp Cook	109.00	days	23,143.00	
	First Aid training			754.75	
	Payroll benefit cost			2,524.37	
	Workers Compensation cost			<u>6,507.19</u>	171,102.11
Equipment	Truck rental	116.00	days	5,970.97	
	Excavator	397.72	hours	56,935.03	
	Generator	9.00	days	1,000.00	
	ATV rental	101.00	days	1,010.00	
	Computer rental	80.00	days	400.00	
	Fuel tank rentals			1,297.33	
	Core Storage-rental			2,198.74	
	Radio rentals			<u>2,628.70</u>	71,440.77
Camp Costs	Camp food & supplies			14,188.19	
	Camp equipment			10,965.82	
	Fuel & Maintenance costs			17,294.20	
	Small tools/equipment			777.13	
	Road building/snow removal			<u>1,628.01</u>	44,853.35
Drilling	Diamond Drilling	13,159.00	feet	<u>321,185.67</u>	321,185.67
Assay	Analysis of samples	1,723.00	samples	<u>32,846.32</u>	32,846.32
Other disbursements	Travel	Airfares to property		4,473.45	
		Travel expenses		14,649.85	
		Helicopter		<u>3,068.06</u>	22,191.36
Other Items	Drafting & map reproduction			425.88	
	Field Supplies			3,796.30	
	Core boxes			9,041.72	
	Telecommunications			1,817.96	
	Freight			<u>4,778.13</u>	19,859.99
TOTAL				<u><u>683,479.57</u></u>	

APPENDIX A

- A) Trenching - Logs
Assay Certificates

		Visual		Descriptive																	Assays				
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No	Cu %	Au g/t
0	5	++			120	70		BFP	K	mdm-dk gy						2-2.5	no	no				Some fresh plag xls - subhedral < 1mm. Dark sugary	99-TR1-053	.45	.28
		++			85	35																			
5	10	++	135	85	50	10		BFP	K	mdm gy						1			2			Feox, malac on fract's	99-TR1-054	.13	.05
		++			120	85	150 90																		
10	15	++			70	40		BFP	K	mdm gy		fresh	2			<1			2	20		Qz vn's w/ Cp	99-TR1-055	.26	.10
		++	165	90	150	85																			
15	20	++			10	90		BFP		lt gry		highly w'd 16-20m			mild							F/s partially alt'd to kaol. No mafics vis. 2% f.d. cp in unw'r rk. Poor sample.	99-TR1-056	.18	.04
		++			25	55																			
20	25	++			130	85		BFP	K	mdm gy		fresh										Rock becomes competent and fractured.	99-TR1-057	.35	.16
		++	150	90	125	85																			
25	30	++			70	90		BFP	Horn.	dk gy		fresh				1-2		tr.				F.d. cp, minor mal, 2 specks of bn.; fresh plag and 1-2 mm of	99-TR1-058	.53	.19
		++																							
30	40	++			50	70		BFP	K													Poor exposure; light grey BFP to 37 m			
		++			50	70																			
		++																							
		++																							
39-40		+-						ZST	baked	grey												39-40 m - siltstone.	99-TR1-059	.26	.09
		+																							
40	50							BFP	K													Weakly min'd.	99-TR1-060	.14	.11
		++			50	70																			
		++			155	70																			
		++			100	90																			
50	55	++						TILL														50-55 is till and no o/c.			
55	60	++			50	90																			

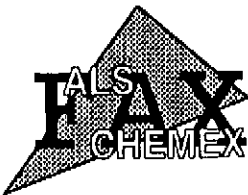


0.31



		Visual		Descriptive																	Assays				
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
		++	30	80	120	90		BFP		tan to lt. gy						1-2						Koalinized, cb-ser alt'd. Locally bl'd. Small blebs of cp			
		++			140	90																			
60	65	++						BFP		mdm - lt gy						<1			1-2			Poor exposure; little cp obs.	99-TR1-061	.27	0.03
64	65	++						BFP	prop-phy	lt gy												Ser-clay alt'd.			
65	70	++						BFP	K	med gy						1-2			1			Thin qtz veins, some fresh plag	99-TR1-062	.35	.08
		++																							
70	85	++																				Poor exposure - no sample.	-	-	
85	90	++						BFP	bl'd & sil	mdm - lt gy	4					1-2			1-2			Salt n pepper bt, f.d py and pecks of cp. 2-3 mm q vns w/ cp	99-TR1-063	.35	.07
		++						BFP	bl'd & sil	mdm - lt gy						<1			1-2			Cont'n of clay alt'd BFP w/ specks f.d py and minor cp @ 97.5 m - sig. Inc. in cp assoc. w/ inc. kaol.	99-TR1-064	.24	.06
90	100	++																							
100	110	++			170	45		BFP	Phy. (Prop) (q-ser, inc.chy)	lt gy						.5			1.5			lg euhed fspar	TR-1	.35	.09
		++	100	90	70	90																	65		
		++	120	50	110	90	40 90																		
		++			30	60	80 90																		
		++	fe ox, weath		30	70	Qz vn's																		
110	120	v v	contact not obs.	90	90	25	70		AND	sil	lt md gy	9				.5			1			Poss. silic silt stone	TR-1	.41	.09
		v v		120	70	120	90																66		
		v v		50	90	65	80																		
		v v		140	70	40	85																		
		v v				60	85																		
120	130	v v		50	90	85	90		AND	sil						.5			1			well fract'd, dec. in cp (only present in blebs w/ py)	TR-1	.19	.05
		v v		115	90	30	65																67		
		v v		20	80	100	85																		
		v v		120	80	70	85																		
		v v		95	80	165	80 85																		

0.31



ALS Chemex

Aurora Laboratory Services Ltd.
 Analytical Chemists * Geochemists * Registered Assayers
 212 Brooksbank Ave., North Vancouver
 British Columbia, Canada V7J 2C1
 PHONE: 604-984-0221 FAX: 604-984-0218

To: PACIFIC BOOKER ##
 10th FLOOR, PRINCESS BUILDING
 609 W. HASTINGS ST.
 VANCOUVER, BC
 V6B 4W4

Page Number :2-A
 Total Pages :3
 Certificate Date: 21-DEC-99
 Invoice No. :19933788
 P.O. Number :
 Account :MGA

Project :
 Comments: ATTN:GORDON WEARY

CERTIFICATE OF ANALYSIS A9933788

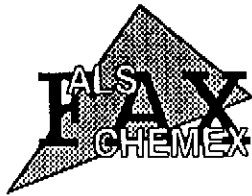
SAMPLE	PREP CODE	Au ppb FA+AA	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
99RD2-097	205 294	360	2.2	0.63	12	< 10	500	< 0.5	2	0.68	0.5	11	71	4760	4.26	< 10	< 1	0.39	< 10	0.69
99RD3-098	205 294	95	1.6	0.94	68	< 10	90	< 0.5	4	0.44	2.0	29	40	5080	3.65	< 10	< 1	0.23	< 10	0.24
99RD3-099	205 294	20	0.4	2.11	14	< 10	180	< 0.5	< 2	0.17	< 0.5	25	53	1220	5.31	< 10	< 1	0.39	< 10	1.00
99RD3-100	205 294	35	1.0	1.41	20	10	100	< 0.5	< 2	0.10	< 0.5	22	44	1260	4.85	< 10	1	0.35	< 10	0.57
99RD3-101	205 294	140	4.2	1.21	50	< 10	150	< 0.5	4	0.25	0.5	17	76	4600	4.06	< 10	< 1	0.29	< 10	0.53
99TR1-053	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-054	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-055	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-056	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-057	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-058	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-059	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-060	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-061	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-062	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-063	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-064	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-065	205 294	85	1.0	0.89	64	< 10	60	< 0.5	2	0.92	0.5	20	60	3480	3.53	< 10	< 1	0.02	10	0.24
99TR1-066	205 294	85	2.2	0.76	100	< 10	80	< 0.5	2	0.09	0.5	21	90	4100	2.48	< 10	< 1	0.21	< 10	0.11
99TR1-067	205 294	45	1.0	0.98	66	< 10	150	< 0.5	< 2	0.13	< 0.5	17	59	1885	3.29	< 10	< 1	0.31	10	0.26
99TR1-068	205 294	585	1.4	1.01	16	< 10	370	< 0.5	6	1.44	< 0.5	12	116	5230	4.03	< 10	< 1	0.50	< 10	1.08
99TR2-001	205 294	335	1.8	1.27	830	< 10	40	< 0.5	4	1.29	0.5	13	86	4920	5.70	< 10	< 1	0.53	< 10	1.07
99TR2-002	205 294	200	2.6	1.06	10	< 10	580	< 0.5	2	1.10	0.5	11	79	3030	3.67	< 10	< 1	0.58	10	1.07
99TR2-003	205 294	330	3.6	0.78	38	< 10	190	< 0.5	4	1.78	0.5	15	81	4420	4.05	< 10	3	0.20	10	0.87
99TR2-004	205 294	185	0.8	1.49	2	< 10	520	< 0.5	4	0.63	0.5	14	118	3310	3.47	< 10	1	0.79	10	1.37
99TR2-005	205 294	225	0.8	1.19	2	< 10	290	< 0.5	2	0.48	< 0.5	14	104	3340	3.47	< 10	< 1	0.65	10	1.11
99TR2-006	205 294	190	0.8	1.30	2	< 10	310	< 0.5	< 2	0.46	< 0.5	13	111	2780	3.14	< 10	1	0.76	10	1.33
99TR2-007	205 294	255	1.0	1.34	6	< 10	280	< 0.5	2	0.48	< 0.5	11	110	3320	3.05	< 10	< 1	0.65	< 10	1.39
99TR2-008	205 294	265	1.0	1.38	2	< 10	330	< 0.5	4	0.42	< 0.5	13	142	4010	3.10	< 10	1	0.90	10	1.38
99TR2-009	205 294	405	1.4	1.59	< 2	< 10	310	< 0.5	6	0.33	0.5	15	128	5740	3.21	< 10	1	1.01	< 10	1.58
99TR2-010	205 294	390	1.6	1.65	6	< 10	310	< 0.5	6	0.34	< 0.5	16	120	6990	3.32	< 10	1	1.14	10	1.66
99TR2-011	205 294	190	1.0	1.33	4	< 10	210	< 0.5	2	0.23	0.5	12	159	4100	2.83	< 10	< 1	0.63	10	1.06
99TR2-012	205 294	160	0.8	1.43	< 2	< 10	330	< 0.5	< 2	0.37	< 0.5	14	111	3200	3.35	< 10	< 1	0.80	10	1.47
99TR2-013	205 294	185	1.0	1.04	8	< 10	480	< 0.5	2	1.15	< 0.5	12	85	3960	2.61	< 10	< 1	0.51	10	0.97
99TR2-014	205 294	195	1.2	1.45	6	< 10	420	< 0.5	2	0.47	< 0.5	14	131	4140	3.08	< 10	< 1	0.92	10	1.41
99TR2-015	205 294	110	0.8	1.18	6	< 10	280	< 0.5	2	0.21	0.5	10	164	2710	2.13	< 10	1	0.46	10	0.72
99TR2-016	205 294	210	1.8	0.99	< 2	< 10	320	< 0.5	4	0.83	1.5	13	88	5360	2.65	< 10	1	0.46	10	0.87
99TR2-017	205 294	145	1.2	1.52	2	< 10	210	< 0.5	2	0.62	0.5	15	125	4410	2.73	< 10	< 1	0.63	10	1.40
99TR2-018	205 294	130	1.8	1.15	16	< 10	300	< 0.5	2	0.76	1.5	17	128	4020	3.01	< 10	< 1	0.50	10	0.96
99TR2-019	205 294	80	0.6	1.18	14	< 10	360	< 0.5	< 2	0.26	< 0.5	14	101	3460	2.57	< 10	1	0.34	10	0.62

TRENCH 1
 99TR-1

TRENCH 2
 99-TR-2

11/27/99
 11:00 AM
 11:00 AM
 11:00 AM

CERTIFICATION: _____



ALS Chemex

Aurora Laboratory Services Ltd.
 Analytical Chemists * Geochemists * Registered Assayers
 212 Brooksbank Ave., North Vancouver
 British Columbia, Canada V7J 2C1
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CERTIFICATE OF ANALYSIS A9933788

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
99RD2-097	205 294	670	3	0.03	34	1210	8	0.33	< 2	5	67	0.11	< 10	< 10	83	< 10	114
99RD3-098	205 294	300	221	< 0.01	133	720	26	1.48	2	8	15	< 0.01	< 10	< 10	57	< 10	198
99RD3-099	205 294	500	22	0.03	106	610	12	0.86	2	6	13	< 0.01	< 10	< 10	60	< 10	64
99RD3-100	205 294	325	34	0.02	104	350	2	2.01	< 2	5	11	< 0.01	< 10	< 10	49	< 10	52
99RD3-101	205 294	500	96	0.02	96	560	14	0.72	< 2	4	14	< 0.01	< 10	< 10	48	< 10	192
99TR1-053	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-054	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-055	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-056	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-057	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-058	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-059	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-060	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-061	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-062	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-063	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-064	-- --	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
99TR1-065	205 294	220	50	< 0.01	72	710	14	1.06	2	7	33	< 0.01	< 10	< 10	63	< 10	132
99TR1-066	205 294	205	70	< 0.01	78	100	40	1.21	< 2	4	25	< 0.01	< 10	< 10	28	< 10	174
99TR1-067	205 294	260	42	0.01	94	110	12	0.90	< 2	6	15	< 0.01	< 10	< 10	39	< 10	60
99TR1-068	205 294	335	3	0.04	32	820	8	0.39	< 2	6	46	0.12	< 10	< 10	88	< 10	88
99TR2-001	205 294	345	4	0.03	42	920	12	3.06	10	6	65	0.13	< 10	< 10	76	< 10	110
99TR2-002	205 294	360	17	0.05	29	1060	4	0.42	< 2	6	61	0.14	< 10	< 10	75	< 10	186
99TR2-003	205 294	595	5	0.03	44	1160	10	1.14	< 2	9	71	0.03	< 10	< 10	79	< 10	114
99TR2-004	205 294	225	3	0.07	40	1060	2	0.21	< 2	5	35	0.18	< 10	< 10	99	< 10	104
99TR2-005	205 294	190	3	0.07	37	1020	6	0.23	2	4	28	0.18	< 10	< 10	105	< 10	80
99TR2-006	205 294	170	2	0.08	40	1090	< 2	0.13	< 2	5	30	0.22	< 10	< 10	101	< 10	76
99TR2-007	205 294	185	3	0.08	41	980	6	0.20	< 2	6	29	0.19	< 10	< 10	96	< 10	88
99TR2-008	205 294	165	13	0.08	50	790	6	0.17	< 2	10	28	0.23	< 10	< 10	110	< 10	72
99TR2-009	205 294	175	4	0.07	48	1020	6	0.25	< 2	9	26	0.25	< 10	< 10	113	< 10	84
99TR2-010	205 294	205	7	0.07	48	1000	6	0.41	< 2	10	26	0.27	< 10	< 10	111	< 10	102
99TR2-011	205 294	245	16	0.07	58	480	8	0.26	< 2	10	17	0.16	< 10	< 10	109	< 10	106
99TR2-012	205 294	185	9	0.07	52	1010	6	0.18	< 2	7	31	0.21	< 10	< 10	110	< 10	68
99TR2-013	205 294	240	9	0.06	40	980	6	0.35	2	7	68	0.13	< 10	< 10	74	< 10	84
99TR2-014	205 294	190	16	0.08	47	870	6	0.39	< 2	8	39	0.24	< 10	< 10	106	< 10	98
99TR2-015	205 294	235	42	0.05	67	190	6	0.24	< 2	10	17	0.07	< 10	< 10	83	< 10	130
99TR2-016	205 294	290	17	0.07	47	730	8	0.55	< 2	6	44	0.10	< 10	< 10	67	< 10	340
99TR2-017	205 294	215	23	0.08	56	870	14	0.55	< 2	9	31	0.18	< 10	< 10	98	< 10	178
99TR2-018	205 294	340	21	0.06	72	630	10	0.52	< 2	10	40	0.10	< 10	< 10	95	< 10	316
99TR2-019	205 294	280	48	0.04	80	340	10	0.35	< 2	8	24	0.05	< 10	< 10	79	< 10	130

TR 1.

TR 2

Trench 1. Orientation/length West to 4m, dog leg to NE... to 140m west of 78-Mu. 2
to 65m, bears to 255° to EOT-120m.

Page 13
9/23/00

Visual		Descriptive															Assays							
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veriet %	Q	Op %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
0	10		/	220	55		BFP	clay + sil.	lt gry	7	M	-	5	-	tr	-	tr	3	41	-	Lt gry loc wh. txt + obl't BFP. Py in masses & f.d.	TR-1-300	655	
10	20	(? deep obl't 13m)	(FAULT?)				BFP as above														10.5 - step ledge and deep obl't to 13m (5m). Py + cp on fract. and minn diss. Some s.wk. fracting few py veins.	TR-1-301	335	
20	30		/	290	80		ZST	K, minn clay	mdn gry	5	W	-	45	-	45	-	tr	1	1	-	shallow obl't to 21. Minn mal on fract ± py ± cp	TR-1-302	257	
30	34						ZST	K, clay	as above												Few fractures in this sec'n. some v. ill't fls part. alt'd → clay. Txt. loc obl't d. Py in blebs & f.d. few kaol. towards	TR-1-303	2710	
34	40						BFP	phyl. some kaol.	buff gry	6-7	v. wk. N.	-	45	-	45	-	tr	1-3	1.5-3	-				
40	50	phyl / K					BFP	K, loc. phyl.	mdn gry to buff gry	7	M	-	45	-	1-1.5	-	10-11 mod	1	5-7 bio brs	-	Pervasive mal. on fract. cp & py f.d. some sugary masses.	TR-1-304	4554	

		Visual					Descriptive															Assays		
From m	To m	ROCK	FRACT	strike	dp	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veniet %	Cl	Op %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
50	52	mod-wkly brkd.	/	145	81		BFP	K	ab	above											contact w/ ZST @ 52m.	TR-1-305		
	56-57		/	308	65		ZST	K, clay halos to phyl	lt-gry buff gry	6-7	N-M	-	S	-	L.S.	-	tr		11-5	-	sw fracturing. ZST is locally brecciated, sil poly alt'd. * Mins < 1m phyl BFP		2442	
	60		/	76	90		ZST	K-phyl v. loc brkd sil.	lt to mom gry	4-6	W	-	S	-	16-17	-	low med	1-1.5	-	Some mal. on fract. sw veining locally brkd or sil. but mainly quite soft + v. fine, sugary sil. + v.f.d.	TR-1-306		365	
	70	25cm Fract. SLICES	/	210	88	(massive Fract)	ZST	AS	ABOVE E	but more fractured.											small (mostly dyke) cp on fractures.	TR-1-307		1925
	72.5		/	SW			BFP	Phyl	lt gry buff	5-6	W	-	S	-	1.5	-	low	1-1.5	-	Mina gouge, heavily frct'd area @ 70-70.5m, slick @ 72m. cont. w/ BFP @ 72.5m. MFL dyk @ 73.5-74 w/ small fls phyls.				
	73.5		/	SW			BFP	clay alt'd txt. obit.	lt gry (conky) 6	5-6	W	-	S-2	-		-		1.5	-					
	80		/	230	90		BFP	Phyl	buff-lt gry	6-7	W	-	S	-		-		1-1.5	1-1	-	Txt. mainly obit.	TR-1-308		133K
			/	100	80																			
			/	220	85																5-10% sec. bio. some ser-clay alt'd. Txt. part. obit.			
	8		/				BFP	K-clay	lt-mom gry	6	M	W	L.S.	-	3.5	-	4	1-2			cp on fractures Mom-lt gry txt obit'd? ppy. Too coarse to be ZST. Some bleaching. Very steel & rust. Some mica ZST w/	TR-1-309		2464
90		BFP mix		Blackly large fracturisk			BFP	K-clay	lt-mom gry	6	M	W	L.S.	-	3.5	-	4	1-2						
100																								

GEOCHEMICAL ANALYSIS CERTIFICATE

Pacific Booker Inc. PROJECT MORRISON File # A003865 Page 1
10th Floor - Princess Bldg, Vancouver BC V6B 4W4 Submitted by: L. Vinca Williams



Table with columns: SAMPLE#, Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, U, Au, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, Al, Na, K, W, Hg, Sc, Tl, S, Ga, Au**, Sample lb

GROUP 10X - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES. UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.

DATE RECEIVED: OCT 2 2000 DATE REPORT MAILED: OCT 14/00 SIGNED BY: [Signature] D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

		Visual		FRACT'S										Descriptive										Assays			
From m	To m	ROCK	strike	dip	strike	dip	VEINS		Lithol	Alt'n	Color	Hard	Weath	Mag	Veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
15	20	++	280	90	290	45			BFP	k, sil	dk gy	8				10	wk						Overlying till 3m depth. Cp on fract's FeOx, mass Py. K BFP bt is obl't w/ 2 bio. Prop BFP: clay alt'd w/ inc. py and less cp. Phy BFP at 18.5 m with abun. Ser.	99-TR2-01	.49	.34	
		++			220	90				prop-phy	gy-gr to lt gy	2-4	part. weath			wk-mod	.5		tr.	2-3	3	0					
20	23	++			230	90			BFP	phy-prop	bl'd to	4				wk	1			2			q stwk vn's w/ minor su's. Cp diss and lg blebs	99-TR2-02	.3	.2	
23	25	++	230	90						k, sil	mdm gy	7				wk	2				1-2		K alt'd 23- 25 m. Abund. 2 bio.				
25	29	+v +v +v +v +v	340	45	240	80	210	90	AND DYK		dk gy						0				1-2		30 cm thick And dyke with physics (< 1mm) & flow banding // to contact. Min. BFP (as above) surrounds DYK.				
29	30	+ ++			235	90	qz	cb	BFP	prop	gr	2-4					0.5			1			Clay altered, mush with locally bl'd and competent.	99-TR2-03	.44	.33	
30	34	++	230	80	280	80			BFP	prop	lt gy						1						South side of tr. is prop alt'd	99-TR2-04	.33	.19	
30	35	++	230	90	260	90				K, horn	dk gy	8					.1										
35	40	++	320	90	300	90			BFP	K, horn	dk gy	8					1-1.4	.1	.5	1							
		++	200	90	300	90																					
40	45	++	240	85	310	80			BFP	K, horn	dk gy	9	no				1	.1				<1	<5	Secondary bio as well.	99-TR2-06	.28	.19
		++	240	45	320	90																					
45	50	++	250	90	290	80			BFP	K, horn	dk gy	8				wk	1		tr.			1-2	Less hornfelsed than above. Much of the bt is obl't.				
		++	310	40	220	90											2						Local carb- chl alt'n.				
		++	210	90	280	90																					
		++	235	45	360	90																					
		++	280	90	280	80																					
50	55	++	255	90	230	90			BFP	K, horn, cb	mdm - lt gy						2	.1			5-10 %	0-5	Lt gy BFP appears less min'd and is carb alt'd. Competant, fract's in rhombs (70 deg)				
		++	310	80	285	90											1.5	.1									
		++	250	90	270	45																					
55	60	++	80	90	100	90			BFP	K	mdm-dk gy						2		mod				Much of the original bt is obl't and there is replace't Cb. Strong hornf. 58-59 m. Rock has a chalky tinge.	99-TR2-08	.4	.27	
		++	0	90	140	90																					

Average 0.36% whole trench



ALS Chemex

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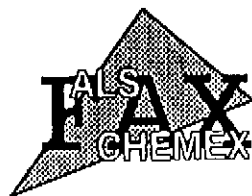
SAMPLE	PRRP CODE	Au ppb FA+AA	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	
99RD2-097	205 294	160	2.2	0.63	12	< 10	500	< 0.5	2	0.68	0.5	11	73	4760	4.26	< 10	< 1	0.39	< 10	0.69	
99RD3-098	205 294	95	1.6	0.94	68	< 10	90	< 0.5	4	0.44	2.0	29	40	5080	3.65	< 10	< 1	0.23	< 10	0.24	
99RD3-099	205 294	20	0.4	2.11	14	< 10	180	< 0.5	< 2	0.17	< 0.5	25	53	1220	5.31	< 10	< 1	0.39	< 10	1.00	
99RD3-100	205 294	35	1.0	1.41	20	< 10	100	< 0.5	< 2	0.10	< 0.5	22	44	1260	4.85	< 10	1	0.35	< 10	0.57	
99RD3-101	205 294	140	4.2	1.21	50	< 10	150	< 0.5	4	0.25	0.5	17	76	4600	4.06	< 10	< 1	0.29	< 10	0.53	
99TR1-053	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-054	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-055	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-056	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-057	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-058	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-059	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-060	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-061	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-062	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-063	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-064	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-065	205 294	85	1.0	0.89	64	< 10	60	< 0.5	2	0.92	0.5	20	60	3480	3.53	< 10	< 1	0.02	10	0.24	
99TR1-066	205 294	85	2.2	0.76	100	< 10	80	< 0.5	2	0.09	0.5	21	90	4100	2.48	< 10	< 1	0.21	< 10	0.11	
99TR1-067	205 294	45	1.0	0.96	66	< 10	150	< 0.5	< 2	0.13	< 0.5	17	59	1865	3.29	< 10	< 1	0.31	10	0.26	
99TR1-068	205 294	585	1.4	1.01	16	< 10	370	< 0.5	6	1.44	< 0.5	12	116	5230	4.03	< 10	< 1	0.50	< 10	1.08	
99TR2-001	205 294	335	1.8	1.27	830	< 10	40	< 0.5	4	1.29	0.5	13	66	4920	5.70	< 10	< 1	0.53	< 10	1.07	
99TR2-002	205 294	200	2.6	1.08	10	< 10	580	< 0.5	2	1.10	0.5	11	79	3030	3.67	< 10	< 1	0.58	10	1.07	
99TR2-003	205 294	330	3.6	0.78	38	< 10	190	< 0.5	4	1.78	0.5	15	81	4420	4.05	< 10	3	0.20	10	0.87	
99TR2-004	205 294	185	0.8	1.49	2	< 10	520	< 0.5	4	0.63	0.5	14	118	3310	3.47	< 10	1	0.79	10	1.37	
99TR2-005	205 294	225	0.8	1.19	2	< 10	290	< 0.5	2	0.48	< 0.5	14	104	3340	3.47	< 10	< 1	0.65	10	1.11	
99TR2-006	205 294	190	0.6	1.30	2	< 10	310	< 0.5	< 2	0.46	< 0.5	13	111	2780	3.14	< 10	< 1	0.76	10	1.33	
99TR2-007	205 294	255	1.0	1.34	6	< 10	280	< 0.5	2	0.48	< 0.5	11	110	3320	3.05	< 10	< 1	0.65	< 10	1.39	
99TR2-008	205 294	265	1.0	1.38	2	< 10	330	< 0.5	4	0.82	< 0.5	13	142	4010	3.10	< 10	1	0.90	10	1.38	
99TR2-009	205 294	405	1.4	1.59	< 2	< 10	310	< 0.5	6	0.33	0.5	15	128	5740	3.21	< 10	1	1.01	< 10	1.58	
99TR2-010	205 294	390	1.6	1.65	6	< 10	310	< 0.5	6	0.34	< 0.5	16	120	6990	3.32	< 10	1	1.14	10	1.66	
99TR2-011	205 294	190	1.0	1.33	4	< 10	210	< 0.5	2	0.23	0.5	12	159	4100	2.83	< 10	< 1	0.63	10	1.06	
99TR2-012	205 294	160	0.8	1.43	< 2	< 10	330	< 0.5	< 2	0.37	< 0.5	14	111	3200	3.35	< 10	< 1	0.80	10	1.47	
99TR2-013	205 294	185	1.0	1.04	8	< 10	480	< 0.5	2	1.15	< 0.5	12	85	3960	2.61	< 10	< 1	0.51	10	0.97	
99TR2-014	205 294	195	1.2	1.45	6	< 10	420	< 0.5	2	0.47	< 0.5	14	131	4140	3.08	< 10	< 1	0.92	10	1.41	
99TR2-015	205 294	110	0.8	1.18	6	< 10	280	< 0.5	2	0.21	0.5	10	164	2710	2.13	< 10	1	0.46	10	0.72	
99TR2-016	205 294	210	1.8	0.99	< 2	< 10	320	< 0.5	4	0.81	1.5	13	88	5360	2.65	< 10	< 1	0.46	10	0.87	
99TR2-017	205 294	145	1.2	1.52	2	< 10	210	< 0.5	2	0.62	0.5	15	125	4410	2.73	< 10	< 1	0.63	10	1.40	
99TR2-018	205 294	130	1.8	1.15	16	< 10	300	< 0.5	2	0.76	1.5	17	128	4020	3.01	< 10	< 1	0.50	10	0.96	
99TR2-019	205 294	80	0.6	1.18	14	< 10	360	< 0.5	< 2	0.26	< 0.5	14	101	3460	2.57	< 10	1	0.34	10	0.62	

TRENCH 1
 99TR-1

TRENCH 2
 99-TR-2

11/29/99 11:34 AM

CERTIFICATION: _____



ALS Chemex

Aurora Laboratory Services Ltd.
 Analytical Chemists * Geochemists * Registered Assayers
 212 Brooksbank Ave., North Vancouver
 British Columbia, Canada V7J 2C1
 PHONE: 604-984-0221 FAX: 604-984-0218

To: PACIFIC BOOKER ##
 10th FLOOR, PRINCESS BUILDING
 609 W. HASTINGS ST.
 VANCOUVER, BC
 V6B 4W4

Page Number : 2-B
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 Certificate Date: 21-DEC-99
 Invoice No. : 19933788
 P.O. Number :
 Account : MGA

Project :
 Comments : ATTN:GORDON WEARY

CERTIFICATE OF ANALYSIS A9933788

SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
99RD2-097	205 294	670	3	0.03	34	1210	8	0.33	< 2	5	67	0.11	< 10	< 10	83	< 10	114
99RD3-098	205 294	300	221	< 0.01	133	720	26	1.48	2	8	15	< 0.01	< 10	< 10	57	< 10	198
99RD3-099	205 294	600	22	0.03	106	610	12	0.86	2	6	13	< 0.01	< 10	< 10	60	< 10	64
99RD3-100	205 294	325	34	0.02	104	350	2	2.01	< 2	5	11	< 0.01	< 10	< 10	49	< 10	52
99RD3-101	205 294	500	96	0.02	96	560	14	0.72	< 2	4	14	< 0.01	< 10	< 10	48	< 10	192
99TR1-053	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-054	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-055	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-056	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-057	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-058	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-059	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-060	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-061	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-062	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-063	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-064	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR1-065	205 294	220	50	< 0.01	72	710	14	1.06	2	7	33	< 0.01	< 10	< 10	63	< 10	132
99TR1-066	205 294	205	70	< 0.01	78	100	40	1.21	< 2	4	25	< 0.01	< 10	< 10	28	< 10	174
99TR1-067	205 294	260	42	0.01	94	110	12	0.90	< 2	6	15	< 0.01	< 10	< 10	39	< 10	60
99TR1-068	205 294	335	3	0.04	32	820	8	0.39	< 2	6	46	0.12	< 10	< 10	88	< 10	88
99TR2-001	205 294	345	4	0.03	42	920	12	1.06	10	6	65	0.13	< 10	< 10	76	< 10	110
99TR2-002	205 294	360	17	0.05	29	1060	4	0.42	< 2	6	61	0.14	< 10	< 10	75	< 10	186
99TR2-003	205 294	595	5	0.03	44	1160	10	1.14	< 2	9	71	0.03	< 10	< 10	79	< 10	114
99TR2-004	205 294	225	3	0.07	40	1060	2	0.21	< 2	5	35	0.18	< 10	< 10	99	< 10	104
99TR2-005	205 294	190	3	0.07	37	1020	6	0.23	2	4	28	0.18	< 10	< 10	105	< 10	80
99TR2-006	205 294	170	2	0.08	40	1090	< 2	0.13	< 2	5	30	0.22	< 10	< 10	101	< 10	76
99TR2-007	205 294	185	3	0.08	41	980	6	0.20	< 2	6	29	0.19	< 10	< 10	96	< 10	88
99TR2-008	205 294	165	13	0.08	50	790	6	0.17	< 2	10	28	0.23	< 10	< 10	110	< 10	72
99TR2-009	205 294	175	4	0.07	48	1020	6	0.25	< 2	9	26	0.25	< 10	< 10	113	< 10	84
99TR2-010	205 294	205	7	0.07	48	1000	6	0.41	< 2	10	26	0.27	< 10	< 10	111	< 10	102
99TR2-011	205 294	245	16	0.07	58	480	8	0.26	< 2	10	17	0.16	< 10	< 10	109	< 10	106
99TR2-012	205 294	185	9	0.07	52	1010	6	0.18	< 2	7	31	0.21	< 10	< 10	110	< 10	68
99TR2-013	205 294	240	9	0.06	40	980	6	0.35	2	7	68	0.13	< 10	< 10	74	< 10	84
99TR2-014	205 294	190	16	0.08	47	870	6	0.39	< 2	8	39	0.24	< 10	< 10	106	< 10	98
99TR2-015	205 294	235	42	0.05	67	190	6	0.24	< 2	10	17	0.07	< 10	< 10	83	< 10	130
99TR2-016	205 294	290	17	0.07	47	730	8	0.55	< 2	6	44	0.10	< 10	< 10	67	< 10	340
99TR2-017	205 294	215	23	0.08	56	870	14	0.55	< 2	9	31	0.18	< 10	< 10	98	< 10	178
99TR2-018	205 294	340	21	0.06	72	630	10	0.52	< 2	10	40	0.10	< 10	< 10	95	< 10	316
99TR2-019	205 294	280	48	0.04	80	340	10	0.35	< 2	8	24	0.05	< 10	< 10	79	< 10	130

TR 2

CERTIFICATION:



ALS Chemex
 Aurora Laboratory Services Ltd.
 Analytical Chemists * Geochemists * Registered Assayers
 212 Brooksbank Ave., North Vancouver
 British Columbia, Canada V7J 2C1
 PHONE: 604-984-0221 FAX: 604-984-0218

To: PACIFIC BOOKER ##
 10th FLOOR, PRINCESS BUILDING
 609 W. HASTINGS ST.
 VANCOUVER, BC
 V6B 4W4

Page Number :3-A
 Total Pages :3
 Certificate Date: 21-DEC-89
 Invoice No. :19933788
 P.O. Number :
 Account :MGA

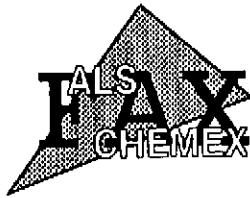
Project :
 Comments: ATTN:GORDON WEARY

CERTIFICATE OF ANALYSIS A9933788

SAMPLE	PRBP CODE	Au ppb FA+AA	Ag ppm	Al %	As ppm	B 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 %
99TR2-020	205 294	135	1.0	1.55	8	< 10	270	< 0.5	8	0.36	0.5	16	107	5290	3.06	< 10	< 1	0.91	10	1.30
99TR2-021	205 294	175	1.6	0.91	66	< 10	140	< 0.5	2	0.23	< 0.5	11	64	2910	2.43	< 10	< 1	0.21	< 10	0.35
99TR2-022	205 294	150	1.4	1.26	54	< 10	200	< 0.5	6	0.60	0.5	18	84	5320	3.08	< 10	< 1	0.49	10	0.89
99TR2-023	205 294	145	1.6	1.19	34	< 10	290	< 0.5	4	0.19	0.5	15	85	4820	2.68	< 10	< 1	0.52	10	0.62
99TR2-024	205 294	85	0.6	0.75	8	< 10	310	< 0.5	2	0.21	< 0.5	16	67	2930	2.94	< 10	< 1	0.35	10	0.34
99TR2-025	205 294	90	0.6	0.85	18	< 10	500	< 0.5	< 2	0.16	< 0.5	13	69	2930	2.51	< 10	< 1	0.33	10	0.25
99TR2-026	205 294	120	1.0	0.81	28	< 10	480	< 0.5	4	0.14	0.5	12	109	3740	2.69	< 10	< 1	0.29	10	0.21
99TR2-027	205 294	105	0.6	1.34	8	< 10	260	< 0.5	2	0.71	< 0.5	17	190	3380	3.07	< 10	< 1	0.52	< 10	0.86
99TR2-028	205 294	125	1.4	2.23	6	< 10	260	< 0.5	4	0.42	0.5	23	117	4400	3.63	< 10	< 1	1.28	10	1.70
99TR2-029	205 294	85	1.0	1.42	32	< 10	140	< 0.5	2	0.39	< 0.5	27	100	3350	4.19	< 10	< 1	0.59	10	0.73
99TR2-030	205 294	70	0.8	0.56	62	< 10	150	< 0.5	< 2	0.12	< 0.5	13	140	2580	1.65	< 10	< 1	0.11	< 10	0.08
99TR2-031	205 294	40	0.6	0.68	60	< 10	200	< 0.5	< 2	0.07	< 0.5	12	132	1400	1.61	< 10	< 1	0.14	< 10	0.08
99TR2-032	205 294	40	0.6	0.99	36	< 10	220	< 0.5	< 2	0.03	< 0.5	19	105	1270	2.32	< 10	< 1	0.25	< 10	0.17
99TR2-033	205 294	50	0.8	0.79	14	< 10	120	< 0.5	< 2	0.54	< 0.5	17	121	1925	2.36	< 10	< 1	0.29	< 10	0.48
99TR2-034	205 294	300	0.2	0.65	66	< 10	230	< 0.5	< 2	0.09	< 0.5	18	90	726	2.62	< 10	< 1	0.25	< 10	0.19
99TR3-068	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR3-069	205 294	335	1.0	0.87	6	< 10	650	< 0.5	4	0.88	< 0.5	11	92	4000	3.40	< 10	< 1	0.56	< 10	1.03
99TR3-070	205 294	310	0.8	0.90	< 2	< 10	160	< 0.5	2	0.54	< 0.5	9	102	3350	3.93	< 10	< 1	0.27	< 10	0.94
99TR3-071	205 294	380	1.2	1.16	6	< 10	180	< 0.5	2	0.57	< 0.5	11	96	3640	3.31	< 10	< 1	0.45	< 10	1.09
99TR3-072	205 294	240	1.0	1.23	< 2	< 10	400	< 0.5	2	0.70	< 0.5	12	99	2880	3.66	< 10	< 1	0.66	< 10	1.17
99TR3-073	205 294	175	1.6	1.26	8	< 10	490	< 0.5	2	0.99	1.0	12	106	3450	3.39	< 10	< 1	0.58	10	1.23
99TR3-074	205 294	160	1.8	1.35	18	< 10	530	< 0.5	2	1.13	2.0	11	107	3420	3.61	< 10	< 1	0.42	10	0.94
99TR3-075	205 294	115	1.2	0.96	10	< 10	350	< 0.5	6	1.03	1.0	11	124	3000	3.45	< 10	< 1	0.23	10	0.68
99TR3-076	205 294	195	1.4	0.89	2	< 10	200	< 0.5	< 2	0.61	0.5	9	196	4780	2.17	< 10	< 1	0.52	10	0.91
99TR3-077	205 294	175	1.8	1.33	8	< 10	280	< 0.5	2	0.37	0.5	11	399	3520	2.67	< 10	< 1	0.58	10	1.03
99TR3-078	205 294	120	2.8	1.11	6	< 10	150	< 0.5	< 2	0.36	0.5	7	308	3900	2.34	< 10	< 1	0.23	10	0.73
99TR3-079	205 294	145	3.0	1.11	12	< 10	60	< 0.5	2	0.42	0.5	10	137	4100	2.21	< 10	< 1	0.17	10	0.68
99TR3-080	205 294	80	1.4	1.61	2	< 10	140	< 0.5	< 2	0.20	0.5	13	106	3010	3.08	< 10	< 1	0.33	10	0.77
99TR3-081	205 294	180	4.4	1.50	8	< 10	140	< 0.5	4	0.70	1.5	10	125	4880	3.30	< 10	< 1	0.41	20	1.07
99TR3-082	205 294	145	1.6	1.69	28	< 10	200	< 0.5	6	0.49	0.5	20	99	4910	3.98	< 10	< 1	0.74	10	1.08
99TR3-083	205 294	130	1.4	1.51	10	< 10	240	< 0.5	6	0.48	< 0.5	17	112	4270	3.00	< 10	< 2	0.69	< 10	1.00
99TR3-084	205 294	100	1.6	0.62	30	< 10	170	< 0.5	2	0.34	0.5	15	91	3930	2.21	< 10	< 1	0.16	< 10	0.20
99TR3-085	205 294	75	0.8	1.13	6	< 10	160	< 0.5	2	0.08	< 0.5	21	66	2420	3.18	< 10	< 1	0.30	< 10	0.42
99TR3-086	205 294	75	0.8	1.26	4	< 10	200	< 0.5	< 2	0.13	< 0.5	16	83	2320	3.22	< 10	< 1	0.31	10	0.54
99TR3-087	205 294	355	2.2	1.09	22	< 10	490	< 0.5	2	0.60	0.5	12	113	4400	4.08	< 10	< 1	0.59	< 10	1.06

TRENCH 2
 99TR 2

TRENCH 3
 99TR 3



ALS Chemex

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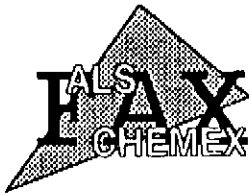
SAMPLE	PREP CODE	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
99TR2-020	205 294	230	57	0.06	78	940	6	0.46	< 2	9	27	0.19	< 10	< 10	102	< 10	132
99TR2-021	205 294	100	53	0.01	33	410	10	0.42	< 2	5	41	0.05	< 10	< 10	53	< 10	100
99TR2-022	205 294	210	67	0.04	53	810	16	0.65	< 2	8	42	0.10	< 10	< 10	81	< 10	170
99TR2-023	205 294	195	113	0.03	71	420	16	0.64	< 2	7	34	0.08	< 10	< 10	66	< 10	176
99TR2-024	205 294	270	66	0.03	106	100	8	0.61	< 2	5	23	< 0.01	< 10	< 10	54	< 10	62
99TR2-025	205 294	225	45	0.03	97	190	6	0.46	< 2	7	28	< 0.01	< 10	< 10	59	< 10	50
99TR2-026	205 294	345	66	0.02	92	180	16	0.37	< 2	5	21	< 0.01	< 10	< 10	59	< 10	130
99TR2-027	205 294	335	42	0.07	99	530	2	0.42	2	11	66	0.08	< 10	< 10	96	< 10	60
99TR2-028	205 294	140	57	0.09	70	1000	8	0.88	< 2	10	35	0.22	< 10	< 10	108	< 10	102
99TR2-029	205 294	135	38	0.03	90	810	10	1.28	< 2	7	31	0.08	< 10	< 10	71	< 10	66
99TR2-030	205 294	135	43	< 0.01	72	50	10	0.53	< 2	3	23	< 0.01	< 10	< 10	22	< 10	72
99TR2-031	205 294	170	18	< 0.01	62	40	10	0.42	2	3	43	< 0.01	< 10	< 10	22	< 10	40
99TR2-032	205 294	290	16	0.01	57	110	10	0.50	4	4	24	< 0.01	< 10	< 10	31	< 10	52
99TR2-033	205 294	230	10	0.01	101	160	8	0.85	< 2	3	30	< 0.01	< 10	< 10	31	< 10	56
99TR2-034	205 294	240	20	0.01	92	160	8	0.43	2	4	17	< 0.01	< 10	< 10	31	< 10	56
99TR3-068	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR3-069	205 294	280	4	0.06	28	930	6	0.31	< 2	6	62	0.16	< 10	< 10	80	< 10	82
99TR3-070	205 294	190	< 1	0.06	25	1020	< 2	0.12	< 2	3	34	0.11	< 10	< 10	110	< 10	58
99TR3-071	205 294	185	2	0.07	28	940	4	0.19	< 2	3	34	0.16	< 10	< 10	92	< 10	62
99TR3-072	205 294	265	2	0.07	30	1040	< 2	0.23	< 2	5	42	0.19	< 10	< 10	92	< 10	80
99TR3-073	205 294	390	4	0.07	43	1130	6	0.36	< 2	7	54	0.15	< 10	< 10	90	< 10	238
99TR3-074	205 294	540	4	0.05	46	1190	6	0.29	< 2	8	53	0.10	< 10	< 10	88	< 10	432
99TR3-075	205 294	465	28	0.04	61	710	8	0.41	< 2	10	47	0.03	< 10	< 10	91	< 10	272
99TR3-076	205 294	235	20	0.06	83	110	10	0.52	< 2	12	26	0.12	< 10	< 10	97	< 10	138
99TR3-077	205 294	215	13	0.05	72	290	8	0.40	< 2	9	19	0.13	< 10	< 10	101	< 10	116
99TR3-078	205 294	235	21	0.04	63	260	10	0.42	< 2	6	15	0.03	< 10	< 10	64	< 10	164
99TR3-079	205 294	255	30	0.04	65	180	10	0.57	< 2	5	14	< 0.01	< 10	< 10	53	< 10	146
99TR3-080	205 294	295	48	0.04	73	240	8	0.75	< 2	7	13	0.01	< 10	< 10	77	< 10	138
99TR3-081	205 294	370	31	0.05	72	910	16	0.63	< 2	7	31	0.06	< 10	< 10	78	< 10	296
99TR3-082	205 294	180	68	0.07	73	810	14	0.76	2	11	48	0.12	< 10	< 10	94	< 10	134
99TR3-083	205 294	150	319	0.10	59	770	14	0.66	< 2	6	50	0.13	< 10	< 10	70	< 10	114
99TR3-084	205 294	185	52	0.01	58	160	14	0.62	< 2	5	21	< 0.01	< 10	< 10	35	< 10	98
99TR3-085	205 294	220	56	0.03	70	130	10	0.95	< 2	6	13	< 0.01	< 10	< 10	47	< 10	68
99TR3-086	205 294	255	47	0.03	93	120	4	0.64	2	5	18	< 0.01	< 10	< 10	56	< 10	44
99TR3-087	205 294	415	3	0.06	40	1000	8	0.34	< 2	5	36	0.16	< 10	< 10	97	< 10	166

TR2

TR3

CERTIFICATION: _____

Visual		FRACT'S				Descriptive															Assays					
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
0	4.5	++	20	85	170	90		BFP	K	dk gy	8-9	1				2	tr	occ	<.5	3	4	K alt'd to 4.5 m then phyl alt'd (bl'd white to 5.5 m). Cp 2%. Not v. frac'd.				
		++	30	80	70	80																				
4.5	5	++	20	85	85	10		BFP	phyl	bl'd	4	2				0.5							99-TR3-68	.52	.59	
5	5.5	++	10	85	50	90		BFP	phyl	bl'd	4	2				0.5			0.5			This sample was obs. to be well min'd but assay is not high. vn'ing. Partial plag to kaol. Abund. 2 bio.	99-TR3-69	.34	.4	
5.5	10	++	110	90	15	90		BFP	K-prop	dk gy	8		wk		wk	2					2-3					
10	15	++	125	90	70	45		BFP	K-phyl	dk gy to bl'd	7-8		wk-mod		no	2		wk			2-3	3	A few bl'd sec'ns			
		++	0	90	110	90																	99-TR3-70	.34	.31	
		++	105	90	95	90																				
15	20	++	70	85	175	85		BFP	K	dk gy	8		N			2						Fresher plag than above.	99-TR3-71	.38	.38	
		++	165	83	50	90																				
20	28	++	100	85	85	80		BFP	K-phyl	dk gy	9				wk-mod	2					4-5	5	Well min'd f.d. cp. Qtz vns. Card vns and alt'n. Fresh plag xals 30%. 2 bio 15-20%.			
		++	20	80	125	90	10 85																			
		++	120	80	80	85	Fe clay alt'd BFP mush																Hole 98-1 at 47.8 m. Road 54-65 m.	99-TR3-72	.29	.24
		++	90	80	150	90																				
73.5	80	++	160	45	160	45		BFP	K-phyl	mdm - dk gy	9				wk	1-2						Hbl lathes alt'd to f.g. 2 bio. Cp f.d. and smears. Minor carb-kaol alt'n.				
		++	70	90	20	90																				
		++	30	90	150	45																				
		++	20	90	120	90																	99-TR3-73	.35	.18	
80	85	++	70	85	15	90		BFP	K-phyl	mdm gy	7-8				wk-mod	1-1.5						2	Bleached from 85 to 86 m. Inc. in q vns. Slightly lower grade	99-TR3-74	.34	.16
		++	30	60																						
85	86	++			70	85		BFP	phyl	tan to light gy	6					1-1.5						<.1	Competent, well fractured rock to this point.			
86	88	+-	20	30	160	60			K		7			5		1							Covered and slumped. South side of trench has minor ZST w/ 5% q sw vns.	99-TR3-75	.3	.12
88	90	++						BFP	phyl	tan to light gy	6				wk	1							Ser- kaol-cd and loc chl alt'd.			



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To: PACIFIC BOOKER ##
 10th FLOOR, PRINCESS BUILDING
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 VANCOUVER, BC
 V6B 4W4

Page Number : 3-A
 Total Pages : 3
 Certificate Date: 21-DEC-99
 Invoice No. : 19933788
 P.O. Number :
 Account : MGA

Project :
 Comments: ATTN:GORDON WEARY

CERTIFICATE OF ANALYSIS A9933788

SAMPLE	PBBP CODE	Au ppb FA+AA	Ag ppm	Al %	As ppm	B 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 %
99TR2-020	205 294	135	1.0	1.55	8	< 10	270	< 0.5	8	0.36	0.5	16	107	5290	3.06	< 10	< 1	0.91	10	1.30
99TR2-021	205 294	175	1.6	0.91	66	< 10	140	< 0.5	2	0.23	< 0.5	11	64	2910	2.43	< 10	< 1	0.21	< 10	0.35
99TR2-022	205 294	150	1.4	1.26	54	< 10	200	< 0.5	6	0.60	0.5	18	84	5320	3.08	< 10	< 1	0.49	10	0.89
99TR2-023	205 294	145	1.6	1.19	34	< 10	290	< 0.5	4	0.19	0.5	15	85	4820	2.68	< 10	< 1	0.52	10	0.62
99TR2-024	205 294	85	0.6	0.75	8	< 10	310	< 0.5	2	0.21	< 0.5	16	67	2930	2.94	< 10	< 1	0.35	10	0.34
99TR2-025	205 294	90	0.6	0.85	18	< 10	500	< 0.5	< 2	0.16	< 0.5	13	69	2910	2.51	< 10	< 1	0.33	10	0.25
99TR2-026	205 294	120	1.0	0.81	28	< 10	480	< 0.5	4	0.14	0.5	12	109	3740	2.69	< 10	< 1	0.29	10	0.21
99TR2-027	205 294	105	0.6	1.34	8	< 10	260	< 0.5	2	0.71	< 0.5	17	190	3380	3.07	< 10	< 1	0.52	< 10	0.86
99TR2-028	205 294	125	1.4	2.23	6	< 10	260	< 0.5	4	0.42	0.5	23	117	4400	3.63	< 10	< 1	1.28	10	1.70
99TR2-029	205 294	85	1.0	1.42	32	< 10	140	< 0.5	2	0.39	< 0.5	27	100	3350	4.19	< 10	< 1	0.59	10	0.73
99TR2-030	205 294	70	0.8	0.56	62	< 10	150	< 0.5	< 2	0.12	< 0.5	13	140	2580	1.65	< 10	< 1	0.11	< 10	0.08
99TR2-031	205 294	40	0.6	0.68	60	< 10	200	< 0.5	< 2	0.07	< 0.5	12	132	1400	1.61	< 10	1	0.14	< 10	0.08
99TR2-032	205 294	40	0.6	0.99	36	< 10	220	< 0.5	< 2	0.03	< 0.5	19	105	1270	2.32	< 10	< 1	0.25	< 10	0.17
99TR2-033	205 294	50	0.8	0.79	14	< 10	120	< 0.5	< 2	0.54	< 0.5	17	121	1925	2.36	< 10	1	0.29	< 10	0.48
99TR2-034	205 294	300	0.2	0.65	66	< 10	210	< 0.5	< 2	0.09	< 0.5	18	90	726	2.62	< 10	1	0.25	< 10	0.19
99TR3-068	-- --	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR3-069	205 294	335	1.0	0.87	6	< 10	650	< 0.5	4	0.88	< 0.5	11	92	4000	3.40	< 10	1	0.56	< 10	1.03
99TR3-070	205 294	310	0.8	0.90	< 2	< 10	160	< 0.5	2	0.54	< 0.5	9	102	3350	3.93	< 10	1	0.27	< 10	0.94
99TR3-071	205 294	380	1.2	1.16	6	< 10	180	< 0.5	2	0.57	< 0.5	11	96	3840	3.31	< 10	< 1	0.45	< 10	1.09
99TR3-072	205 294	240	1.0	1.23	< 2	< 10	400	< 0.5	2	0.70	< 0.5	12	99	2880	3.66	< 10	< 1	0.66	< 10	1.17
99TR3-073	205 294	175	1.6	1.26	8	< 10	490	< 0.5	2	0.99	1.0	12	106	3450	3.39	< 10	1	0.58	10	1.23
99TR3-074	205 294	160	1.8	1.35	18	< 10	530	< 0.5	2	1.13	2.0	11	107	3420	3.61	< 10	1	0.42	10	0.94
99TR3-075	205 294	115	1.2	0.96	10	< 10	350	< 0.5	6	1.03	1.0	11	124	3000	3.45	< 10	1	0.23	10	0.68
99TR3-076	205 294	195	1.4	0.89	2	< 10	200	< 0.5	< 2	0.61	0.5	9	196	4780	2.17	< 10	< 1	0.52	10	0.91
99TR3-077	205 294	175	1.0	1.33	8	< 10	280	< 0.5	2	0.37	0.5	11	399	3520	2.67	< 10	< 1	0.58	10	1.03
99TR3-078	205 294	120	2.8	1.11	6	< 10	150	< 0.5	< 2	0.36	0.5	7	308	3900	2.34	< 10	< 1	0.23	10	0.73
99TR3-079	205 294	145	3.0	1.11	12	< 10	60	< 0.5	2	0.42	0.5	10	137	4100	2.21	< 10	< 1	0.17	10	0.68
99TR3-080	205 294	80	1.4	1.61	2	< 10	140	< 0.5	< 2	0.20	0.5	13	106	3010	3.08	< 10	< 1	0.33	10	0.77
99TR3-081	205 294	180	4.4	1.50	8	< 10	140	< 0.5	4	0.70	1.5	10	125	4880	3.30	< 10	1	0.41	20	1.07
99TR3-082	205 294	145	1.6	1.69	28	< 10	200	< 0.5	6	0.49	0.5	20	99	4910	3.98	< 10	< 1	0.74	10	1.08
99TR3-083	205 294	130	1.4	1.51	10	< 10	240	< 0.5	6	0.48	< 0.5	17	112	4270	3.00	< 10	2	0.69	< 10	1.08
99TR3-084	205 294	100	1.6	0.62	30	< 10	170	< 0.5	2	0.34	0.5	15	91	3930	2.21	< 10	< 1	0.16	< 10	0.20
99TR3-085	205 294	75	0.8	1.13	6	< 10	160	< 0.5	2	0.08	< 0.5	21	66	2420	3.18	< 10	< 1	0.30	< 10	0.42
99TR3-086	205 294	75	0.8	1.26	4	< 10	200	< 0.5	< 2	0.13	< 0.5	16	83	2320	3.22	< 10	< 1	0.31	10	0.54
99TR3-087	205 294	355	2.2	1.09	22	< 10	490	< 0.5	2	0.60	0.5	12	113	4400	4.08	< 10	< 1	0.59	< 10	1.06

TRENCH 2
99TR 2

TRENCH 3
99TR 3

CERTIFICATION: _____



ALS Chemex

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CERTIFICATE OF ANALYSIS A9933788

SAMPLE	PREP CODE		Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Ti	Tl	U	V	W	Zn
	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
99TR2-020	205	294	230	57	0.06	78	940	6	0.46	< 2	9	27	0.19	< 10	< 10	102	< 10	132
99TR2-021	205	294	100	53	0.01	33	410	10	0.42	< 2	5	41	0.05	< 10	< 10	53	< 10	100
99TR2-022	205	294	210	67	0.04	53	810	16	0.65	< 2	8	42	0.10	< 10	< 10	81	< 10	170
99TR2-023	205	294	195	113	0.03	71	420	16	0.64	< 2	7	34	0.08	< 10	< 10	66	< 10	176
99TR2-024	205	294	270	66	0.03	106	100	8	0.61	< 2	5	23	< 0.01	< 10	< 10	54	< 10	62
99TR2-025	205	294	225	45	0.03	97	190	6	0.46	< 2	7	28	< 0.01	< 10	< 10	59	< 10	50
99TR2-026	205	294	345	66	0.02	92	180	16	0.37	< 2	5	21	< 0.01	< 10	< 10	59	< 10	130
99TR2-027	205	294	335	42	0.07	99	530	2	0.42	2	11	66	0.08	< 10	< 10	96	< 10	60
99TR2-028	205	294	140	57	0.09	70	1000	8	0.88	< 2	10	35	0.22	< 10	< 10	108	< 10	102
99TR2-029	205	294	135	38	0.03	90	810	10	1.28	< 2	7	31	0.08	< 10	< 10	71	< 10	86
99TR2-030	205	294	135	43	< 0.01	72	50	10	0.53	< 2	3	23	< 0.01	< 10	< 10	22	< 10	72
99TR2-031	205	294	170	18	< 0.01	62	40	10	0.42	2	3	43	< 0.01	< 10	< 10	22	< 10	48
99TR2-032	205	294	290	16	0.01	57	110	10	0.50	4	4	24	< 0.01	< 10	< 10	31	< 10	52
99TR2-033	205	294	230	10	0.01	101	160	8	0.85	< 2	3	30	< 0.01	< 10	< 10	31	< 10	58
99TR2-034	205	294	240	20	0.01	92	160	8	0.43	2	4	17	< 0.01	< 10	< 10	31	< 10	56
99TR3-068	--	--	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed	NotRed
99TR3-069	205	294	280	4	0.06	28	930	6	0.31	< 2	6	62	0.16	< 10	< 10	80	< 10	82
99TR3-070	205	294	190	< 1	0.06	25	1020	< 2	0.12	< 2	3	34	0.11	< 10	< 10	110	< 10	58
99TR3-071	205	294	185	2	0.07	28	940	4	0.19	< 2	3	34	0.16	< 10	< 10	92	< 10	62
99TR3-072	205	294	265	2	0.07	30	1040	< 2	0.23	< 2	5	42	0.19	< 10	< 10	92	< 10	80
99TR3-073	205	294	390	4	0.07	43	1130	6	0.36	< 2	7	54	0.15	< 10	< 10	90	< 10	238
99TR3-074	205	294	540	4	0.05	46	1190	6	0.29	< 2	8	53	0.10	< 10	< 10	88	< 10	432
99TR3-075	205	294	465	28	0.04	61	710	8	0.41	< 2	10	47	0.03	< 10	< 10	91	< 10	272
99TR3-076	205	294	235	20	0.06	83	110	10	0.52	< 2	12	26	0.12	< 10	< 10	97	< 10	138
99TR3-077	205	294	215	13	0.05	72	290	8	0.40	< 2	9	19	0.13	< 10	< 10	101	< 10	116
99TR3-078	205	294	235	21	0.04	63	260	10	0.42	< 2	6	15	0.03	< 10	< 10	64	< 10	164
99TR3-079	205	294	255	30	0.04	65	180	18	0.57	< 2	5	14	< 0.01	< 10	< 10	53	< 10	146
99TR3-080	205	294	295	48	0.04	73	240	8	0.75	< 2	7	13	0.01	< 10	< 10	77	< 10	138
99TR3-081	205	294	370	31	0.05	72	910	16	0.63	< 2	7	31	0.06	< 10	< 10	78	< 10	296
99TR3-082	205	294	180	68	0.07	73	810	14	0.76	2	11	48	0.12	< 10	< 10	94	< 10	134
99TR3-083	205	294	150	319	0.10	59	770	14	0.66	< 2	6	50	0.13	< 10	< 10	70	< 10	114
99TR3-084	205	294	185	52	0.01	58	160	14	0.62	< 2	5	21	< 0.01	< 10	< 10	35	< 10	98
99TR3-085	205	294	220	56	0.03	70	130	10	0.95	< 2	6	13	< 0.01	< 10	< 10	47	< 10	68
99TR3-086	205	294	255	47	0.03	93	120	4	0.64	2	5	18	< 0.01	< 10	< 10	56	< 10	44
99TR3-087	205	294	415	3	0.06	40	1000	8	0.34	< 2	5	36	0.16	< 10	< 10	97	< 10	166

TR2

TR3

CERTIFICATION: _____

Trc # T⁺ +
Orientation/length E-W

Lo: -50' Int: N of - over -
east of RD-4

age: 2
partially cloudy 18-21°

Visual		Descriptive															Assays							
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	venter %	Cl	Cp %	Bn %	Mel	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
0	10	+	covered				BFP	K	dk s'y	7	1.5	M	S	-	.5	-	-	41	3	3	Welly could not reach bedrock - 15 m below beginning of this tr. v. steep little secn. difficult to obtain b/c some subcrop sampled Not v. good sample spec of cp. Abund. 2nd. bio.	TR4 200	0.12	
10	20	+	covered	156	90		BFP	K	med gy	8	1	W	<5	W	.5 .7	-	low	1	3	2	Discontinuous exposure - likely part subcrop part outcrop of till/colluvium.	TR4 201	0.08	
20	30	+	partially covered f. few fract.				BFP	Phyl to K	lt + med gy	9	2.5	-	25	-	.6 .8	-	-	1- 15	2- 3	0 2	v. solid outcrop - difficult to sample v. resistant. visible c.d. cp. Py c.d. f stringers	TR4 202	0.09	
30	40	+	Y	110 202 70 230	80 75 82 60		BFP	K to Phyl	med + s'y	7- 8	.5	-	25	v. wk	1- 17	-	tr.	1 2	1- 2	1- 2	cp along fractures. (some fid.)	TR4 203	0.15	
40	50	+	Y	274 314	60 40		BFP	K to Phyl	med. lt s'y (ten)	8	.5	-	3- 4	-	.5 .7	-	tr.	1- 13	2 4	3- 4	cp along fractures. Txt. partially obt'd. Browns more phylic to west	TR4 204	0.32	
48	50	+	0.6			intersection w/ RD-4																		

0.25%

GEOCHEMICAL ANALYSIS CERTIFICATE

Pacific Booker Inc. PROJECT MORRISON File # A002283 Page 1

10th Floor - Princess Bldg, Vancouver BC V6B 4W4 Submitted by: Gordon Heary



Table with columns: SAMPLE#, Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, U, Au, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Tl, B, Al, Na, K, W, Hg, Sc, Tl, S, Ga, Au**. Rows include samples TR-4-200 through TR-7-196 and STANDARD C3/AU-1 and STANDARD G-2.

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES. UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPM. - SAMPLE TYPE: ROCK AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

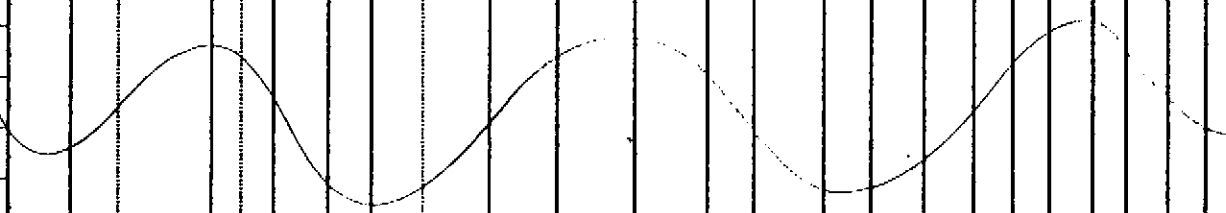
DATE RECEIVED: JUL 12 2000 DATE REPORT MAILED: July 21/00 SIGNED BY: D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

Data FA

Orientation/length E-W

		Visual					Descriptive															Assays		
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	AKn	Color	Hard	Weath	Mag	Vermet %	Cl	Cp %	En %	Mel	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
0	10	+	X	310	69		BFP	K	dk gy	6-7	low	L-M	LS	-	1	-	low	5	24	5	Competent, lg block min'd BFP.	TR-4 312	.18	.09
		+	X	90	90																			
		+	X	010	75																			
		+	X	240	90																			
10	20	+	X	85	80		BFP	K	as above						1.3						K to 12m 12-14m - ch. l. intermix EP & py levels vary: one ↑ other ↓ g-py vns (micro).	TR-4- 313	.38	.13
		+	X	230	80	gpy		K- phyl	H- mdm gy	5-6	low	N-L	LS	-	1.5	-	N	5	1	2				
		+	X	195	45										.7			1.5		3				
20	20	+					BFP	phyl- (K)	H- mdm gy	5-6	mod- low	N-L	LS	-	.7		N	1.5	1	0	F.d. cps py many phylab	TR-4- 314	.31	.10
	26	+													1					1				
	27	-					ZST	K	dkgy	7	low	L-M	LS	-	.6		N	1	2	-	25m - becomes much deeper o/b coincides w/ Δ to zst. In zst cp on fract. wkly diss wkchl tng. Final BFP may be bld phylab			
	32	+					BFP	K (phyl)	dk- lt gy	7-8	low	L	LS	-	.4			1.5	1	3				
																					32-40 deep o/b stopped trenching. Thru swamp (clearing) & begin tr. @ 122m.			
122		+					BFP	phyl- clt + sil.	H. gy	10	low- N		LS	-	.5			Cl	2	3	Very hard/sil. BFP. Specks of cp if py v. competent / no fract	TR-4- 315	.06	.01
		+																						
		+																						
		+																						
		+																						
	130	-					ZST	phyl- K	BFP- dkgy	10	low- mod		LS	-	.5			Cl	Cl	-	ZST is v. hard & wkly brecciated.			



TR-1-500 collect Oct 16/200. This joins onto 02211122

Oct 15/16 by TOP/ED.DA

Visual		Descriptive																		Assays					
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Altn	Color	Hard	Weath	Mag	Vol %	Cl	Sp %	Bn %	Mel	Py %	Cal/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
130		BFP					ZST	phyl-k	H-main gy	9	low	sl. wk	5	-	25	-	-	17	2	-	BFP has coarser cp than typically obs (small blebs). last 2-m more weath	TR-9-216		0.17	0.03
		BFP					BFP	phyl	H-gy buff	9	mod-low	wk	25	-	.6	-	-	.5	3	-					
140						8	BFP	phyl sil.	H-gy buff	9-10	low	-	5	-	.3	-	-	.6	3	-	Specks of cpy/py Some Kaol.	TR-9-317			
149							ZST	phyl	buff	9	mod	-	25	-	tr	-	-	.5	1	-	End section ~ 148-150m		0.27	0.07	
							BFP	phyl sil.	H-gy buff	9-10	mod-low	-	25	-	.9	-	low	.5	3	-	much coarser cp; better grade.				
150							BFP	phyl sil.	11	11	low	-	25	-	.3	-	-	.5	1-7	1.5	Operator has turned down past stratid bld 2m to fresh mat. Diff. to obtain spl b/c few fractures	TR-9-318		0.07	0.02
158							ZST	phyl sil.	buff	9	low	-	5	-	.3	-	-	.3	1	-					
160							BFP	phyl	H-gy buff	6	low	-	25	-	.3	-	-	.5	1	-	Bio → ser fb → kaol.	TR-9-500			
		166					TUFF	K	dk gy	6	low	-	25	-	-	-	-	.2	1-2	-	In and out of TUFF and phyl and BFP.				
		167					BFP	phyl	gy	6															
		168					TUFF	K	gy	6															
		159					BFP	phyl	gy	6-7											One large piece of kaol BFP				
170																					TUFF is dk gy w/ SA-SR fragments competent, and w/ few fractures almost none of which are visible b/c of shear				

7m hiatus & joins
Tuff

Trench # TR7
Orientation/length E-W 4 curves to south

Location Begins 215

Page 01

Oct 15 3:30 P.M. E.O.T.O.P

Visual		Descriptive															Assays						
From m	To m	ROCK	FRACT	Strike dip	VEINS	Lithol	Alt'n	Color	Hard	Weather	Mag	Versect %	Q	Cp %	Bn %	Mal %	Py %	Cu/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
215	225	Δ	X	15° 90° 24° 86° 12° 52°	py lim	ZS	Silic-phyl	H. gry - med. gry	5	3	N	5-8	N	0	0	0	2	0	0	-25 had rusty Oxid. along Fracts Py only along Fracts -25 seems 'hornfelsed' in some areas, with no v.ing at all. -some coarser grained sections.	TR4 360		
225	235		X	38° 84° 34° 78° 59° 84°	py lim py-cp	ZS	Silic	Med gry/dk gry	5	2-3	N	5-3	N	0	0	0	2	0	0	-Py-filled fracts, rusty. -some limonite-rich fracts. -minor cp w/ py in fracts further on in interval.	TR4 361		
235	245		X	73° 36° 99° 66°	py lim	ZS	Silic (phyl)	Med. gry	6	2-3	N	5-8	N	0.3	0.5	0	2.5	3.0	0	-py - Aspy (?) filled fracts. -up to 3-4 mm thick in some areas. - 'hornfelsed' in some areas. H. gry & cly-rich. no thas.	TR4 362		
245	255		X	91° 76° 208° 61° 232° 72° 211° 65°	py lim py?	ZS	Phyl	Med. gry	5	2-3	N	5	N	0.3	0.3	0	0.3	2	0	-BPP is only w/ m.oxide -cp content is increasing; Mal along Fracts. -py along Fracts; contact is at ~ 217° 50° -cp increases down the interval. -cp is cd	TR4 363		
255	258		X	198° 42°	py	BPP	Phyl	H. gry	5	2-3	N	5	N	0.8	1.5	0	1.5	0	0	-cp in fine specks in phyl alt'd. BPP. too blk. exposure here.	TR4 364		
258	259					ZST	phyl	H. gry	5	2	-	LS	-	1	1.5	-	-	-	-				
259	260					BPP	phyl	H. gry	5	2	-	LS	-	1	1.5	-	-	-	-				
260	261																						

all sample taken

TILL TR 501

Trench # 124
Orientation/length E-W

Location

Page 01

Visual		Descriptive															Assays					
From m	To m	ROCK	FRACT	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Verne	Cl	Cp %	Bn %	Mel	Py %	Cu %	Bio %	Description	Sample No.	Cu %	Au gr
265	268	BFP			BFP	K	dk grey	7-8	1	M			3			15	1	1	TILL 365-368.	124-365		
		BFP			BFP	K	ll	7-8	1				4			1		4	TILL 370-372.5			
275		BFP			BFP	K	dk grey	7-8	1				3.5			15	1		Sub-fine m. dissp. pyrox disc. ll.	124-366		
		ZST					phyl H 5-6	6	1				0.5			4	4		Fine. of specks of cpy. of fracts. Intersect bl. 383m 5m south of 1725 L.			
285																				124-367		
295																			Trench veers to south.	124-368		
305																				124-369		

Trench # 305-025 m (vertical) @ -70° (NO. 1) Location
 Orientation/length **TR-4**

Age 1.1 R

285
295
305
315
325

From m		To m		Visual			Descriptive														Assays				
From m	To m	ROCK	FRACT	strike	dp	VEINS	Lithol	Alt'n	Color	Hard	Weight	Mag	Versect %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
285		bx mind	200	80	230/85	ZST	phyl	lt grey	7-8	1-3			up to 51		4	21		N	1	2		Highly oxidized area @ 287 w/ heavy FeOx, jaros. Probably dx'd w/ Acf filling 230/85 or at 200m. 2nd py mineral. phyl	TK9 367		
			226	85	320	70	ZST	phyl	lt grey	7	2					3			2	1					
295							BFP	phyl	lt grey	7	2					3			2	1		2nd cp+py in vas fine speckles of Bldng. Some goosony or ss w/ p.p. - bld cp in fine veins	TK9 368		
		302m ZST				slightly d. r. 100	ZST	K	lt grey	6	2								1	1					
305							BFP	K	dk grey	6	0-4					5			1	1		BFP is quite waxy rd. & locally highly oxidized.	TK9 369		
		m. fract fill					ZST	K	lt grey	5	1-2								1	1					
315		till					TILL															Fract zone near sheets bands in northwest.	TR 370 (cont)		
		320.5				SS 90	BFP	phyl	H grey w.n.	5-6	2								2	1		Heavy sticks in ZST - shiny stick surface bld in ZST. 315 tr. Acids laced			
		ZST fract zone				SLICKS 160 88	ZST	K phyl	lt grey	5	2-3									1	1				
							BFP	phyl	H grey	6	1-2									1	1				

End Tr. 4 joins L.N. Rd.

2nd bx in 285-295 @ 292 is K-phyl alt'd & seems to be less mind 25m in section

		Visual						Descriptive																	Assays		
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Air'n	Color	Hard	Weath	Mag	Ventel %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Wt	Description	Sample No.	Cu %	Au g/t		
0	8	++ ++ ++ ++ ++ ++ ++	///	102 150 64	30 17 86		BFP	phy- K	H- mom gy	7- 8	1- 1.3	M K	5	-	1- 1.5	-	low mod	1- 1.5	2- 3	1- 2		F.d. cp + py, lots with min. lots. Mix of botmattn types. Initially more phyl, S-B K mainly. Korans de magnetik. zst. fid. cp low mod.	TR-5 220	.29	.09		
8	10	-- --	///	210	80		ZST	ph-K	Hgy	8	1	-	5- 6	-	1- 1.5	-	-	1	1- 2	-							
10	16	++ ++ ++ ++ ++	///	226 224	20 82		BFP	K- phyl	dk- H- gy	8- 9	1	M	2.5	WK (S)	1- 1.5	-	low	1	1.5	2- 3	WK	Minn zst mixed in w/ K BFP.	TR5 221	.29	.09		
16	18	+				py 102/80		bid	wh.	4.5	1/2	-	2.5	-	0.5	-	low	1	-	-		@ 16m. becomes bid wh. cp in g unis. @ B-K EST					
18	20	-- --																									
20	23	-- -- -- -- --	///	225 129	78 90		ZST	K	man- gy	7	<1	-	5	-	0.5 .9	-	low	<1	<1	-		Minn phyl air'n or phyl. haloc around some unis.	TR5 222	.38	.17		
23	27	++ ++ ++					BFP	K (cuppy)	S+ P	6- 7	0.5	-	2.5	-	0.7	-	low	1	2- 3	2- 4		Aband. 2 nd bio → salt'n pepper txt (orig. part. obH)					
27	30	-- --					ZST	K	H gy	6	0.5	-	2.5	WK-S	-	-	-	1	1- 1.5	-							
30	34	-- --	///				ZST	K- phyl	H- gy	7	1	-	2.5	-	0.5 .7	-	-	1	1.5	-			TR5 223	.41	.09		
34	40	++ ++ ++ ++ ++	///	60	70		BFP	K phyl	man- H gy	7	~1	M	5	WK	1- 1.3	-	-	1- 2	1.5	5		@ 36m. BFP ↑ cp - c.d. cp w/ py					
40	47	-- -- -- -- --					ZST	K- phyl	H- gy	7- 8	.7	-	5	-	1.0 1.3	-	-	1- 1.5	2.2	-	WK	short sec - of well mind zst mild-mod sil.	TR5- 224	.33	.11		
47	50	++ ++	///				BFP	K- phyl	dk- Hgy	8	<1.5	N- M	<1.5	WK	1- 1.2	-	tr	1	2- 3	0- 3	WK	Nicely f. d. cp.					

GEOCHEMICAL ANALYSIS CERTIFICATE



Pacific Booker Inc. PROJECT MORRISON File # A002418
10th Floor - Princess Bldg, Vancouver BC V6B 4W4 Submitted by: Gordon Weary

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Au**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	gm/mt
TR-5-226	49.3	2529	7	65	.4	49	21	131	3.39	1	<1	<2	6	25	.2	<.5	<.5	117	.26	.099	15	79	1.56	325	.279	2	1.86	.076	1.17	1	<1	11.6	<1	.51	15	.09
TR-5-227	43.7	2297	16	65	.6	45	16	226	3.95	1	<1	<2	2	15	.5	<.5	<.5	75	.09	.025	8	25	.50	189	.036	<1	1.37	.040	.25	<1	<1	6.5	<1	.64	12	.09
TR-5-228 TRS	18.3	819	22	78	.2	31	10	260	2.90	1	<1	<2	3	21	.2	<.5	<.5	79	.05	.009	12	28	.34	265	.066	3	1.30	.037	.21	1	<1	7.7	<1	.34	9	.02
TR-5-229	35.5	2447	9	69	.6	51	14	197	3.29	1	<1	<2	2	22	.2	.7	<.5	107	.24	.091	7	44	1.15	279	.191	4	1.86	.059	.79	1	<1	9.6	<1	.34	13	.08
TR-5-230	50.1	2702	8	113	2.4	48	16	251	3.75	6	<1	<2	3	25	.6	<.5	.7	86	.34	.071	10	48	1.15	286	.128	1	1.72	.055	.69	1	<1	7.8	<1	.60	14	.08
RE TR-5-230	48.1	2704	8	114	2.4	47	16	248	3.83	6	<1	<2	3	25	.6	<.5	1.4	85	.34	.071	10	48	1.14	290	.127	1	1.70	.055	.69	1	<1	7.7	<1	.60	15	.08

GROUP 10X - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPM
- SAMPLE TYPE: ROCK AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 18 2000 DATE REPORT MAILED: *Aug 1/00* SIGNED BY: *C. Toy* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

		Visual					Descriptive															Assays			
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Vermet %	Cl	Ca %	Bn %	Mal	Py %	Ca/Cb %	Bio %	hcn	Description	Sample No.	Cu %	Au g/t
50	60	ZST		042 304	02 84	pop bid pop bid pop bid	ZST	K- phy	man gy H. ten.	6	2.5	N- M	10	-	2.5	-	tr.	1	Cl	-	-	several .3-.05m secs of bid ZST	TR-6 215	0.08	
60	62	SW BFP		010 318	0V 52		BFP	K	m- dk gy	7	.5- 1	-	5	v. NK (loc)	.5- 7	-	tr.	2	2- 3	4	tr.	On BFP: minor sp on fractures & early f.d. more abund. py. BFP is gub fractid vrs. typical. loc hbl → bio.	TR-6- 216	0.16	
62	70	blk ZST		300 024	67 08		BFP ZST	K phy	dk gy H gy- ten	8 6	.5- .7	-	5- 7	-	2- 7	-	-	2- 3	2- 3	2- 3	-	ZST is locally bid wh. but otherwise similar to prev. es. Blk vish @ surface	TR-6 217	0.12	
70	73	ZST		260 080 290	68 80 90		BFP ZST	K phy	dk gy H gy- ten	8 6	.5- .7	-	5- 7	-	2- 7	-	-	2- 3	2- 3	2- 3	-	ZST is locally bid wh. but otherwise similar to prev. es. Blk vish @ surface	TR-6 217	0.12	
73	80	ZST		260 080 290	68 80 90		BFP ZST	K phy	dk gy H gy- ten	8 6	.5- .7	-	5- 7	-	2- 7	-	-	2- 3	2- 3	2- 3	-	ZST is locally bid wh. but otherwise similar to prev. es. Blk vish @ surface	TR-6 217	0.12	
80	90	ZST		250 082	74 70		ZST	K- phy	H. gy- ten	7	.7- 1	N- M (loc)	5- 6	-	tr.	-	-	1	Cl	-	-				
90	102	blk- rich ZST		304 54	80 45		ZST	por	bid	4	1-2	-	5	-	tr.	-	-	4	2- 3	-	-	clear o/b when est in bid.	TR-6 218	0.04	
102	103	ZST					ZST	por	AS ABOVE																
102	103	ZST					ZST	phy	ten	7- 8	1	-	5- 7	-	tr.	-	-	1- 2	1- 2	-	-	partially K. cutid	TR6 219	0.06	

End of trench joins N's access road ~105-106 m.

(ISO 9002 Accredited Co.)

GEOCHEMICAL ANALYSIS CERTIFICATE

Pacific Booker Inc. PROJECT MORRISON File # A003865 Page 1
10th Floor - Princess Bui, Vancouver BC V6B 4W4 Submitted by: L. Vince Williams

Table with columns: SAMPLE#, Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, U, Au, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, Al, Na, K, W, Hg, Sc, Tl, S, Ga, Au**, Sample lb. Rows include TR-1-300 to TR-6-342 and STANDARD G-2.

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES. UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPM. - SAMPLE TYPE: ROCK R150 60C AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: OCT 2 2000 DATE REPORT MAILED: Oct 14/00 SIGNED BY: D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Trench # TK4 - The west side
Orientation/length E-W.

JC 1200 ED

Location Trench begins close to 110-10

		Visual					Descriptive															Assays			
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	venet %	Cl	Sp %	Bh %	Mal	Py %	Cal/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
0	1.5	ZST					ZST	K	mdn gy	7	.5		4-5		.5				11.5	1.5		→ About 2nd. lab BFP part. oxid weath. ZST has strong SW wing BFP has c.p. cp + py. Mild hem. stain.	TR-7 190	0.22	
1.5	3	BFP					BFP	K	dk gy	8	2.5		2.5		.7			1.5	7.3	2					
3	7	ZST + BFP					ZST	K	AS																
7	10	BFP					BFP	K	mdk gy	7	2.5				1.5			1.5							
10	11	BFP																				Py. cp + tr. no anhyd fract's. strong SW fract'g. ZST looks poorly mixed except on several fractures.	TR-7 191	0.17	
11	20	ZST					ZST	K (mild pop)	mdn gy (tan)	7-8	.5-7		5		.5-6			2-2.5							
20	30						ZST	K (sil)	mdn gy	8-9	1		5-7		2.5			2.5-3					V. similar to previous although fewer fract's & less min.	TR-7 192	0.20
30	40						ZST	K	mdn gy	7	.7		5		2.5			3				Decrease yet in SW fracturing.	TR-7 193	0.09	
40	50						ZST	K (mbd phyl)	mdn gy - mkgy tan	7	2.5		5-6		tr.			3				S.S. - mainly py. smeared or f.d. on fractures. casing for DM-BS(?) found close to 50m.	TR-7 194	0.18	



SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Au** gm/mt
TR-7-197	7.1	970	8	138	1.3	35	17	250	3.19	77	<1	<2	1	20	.5	3.1	.9	62	.24	.063	9	20	.26	224	.010	7	1.26	.056	.21	1	<1	5.4	<1	.35	3	<.01
TR-7-198 TR	2.2	624	12	84	.8	28	12	213	2.84	150	<1	<2	2	20	.5	3.2	<.5	81	.21	.070	9	38	.69	202	.035	11	1.60	.074	.34	1	<1	6.0	<1	.46	6	.01
TR-7-199	4.5	947	19	195	1.5	50	31	395	4.55	223	1	4	4	35	1.1	2.2	.6	113	.50	.128	11	86	1.80	170	.137	10	2.06	.079	.70	1	<1	7.7	<1	.77	9	.02
RE TR-7-199	4.4	986	18	193	1.5	49	31	392	4.50	214	1	4	4	35	1.1	2.3	.7	113	.50	.129	10	86	1.78	184	.138	10	2.05	.080	.70	1	<1	7.7	1	.77	9	.01
STANDARD C3	26.9	63	34	164	5.6	34	11	771	3.06	58	23	<2	21	28	22.3	19.6	23.2	88	.55	.096	20	169	.58	157	.084	25	1.75	.041	.16	15	1	4.4	<1	.02	7	-
STANDARD G-2	1.8	8	4	40	.1	7	4	510	1.93	<1	3	<2	4	76	<.2	<.5	<.5	58	.63	.102	9	75	.56	241	.124	8	1.00	.117	.50	2	<1	2.5	1<.01	4	-	

Sample type: ROCK. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

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GEOCHEMICAL ANALYSIS CERTIFICATE

Pacific Booker Inc. PROJECT MORRISON File # A003865 Page 1

10th Floor - Princess Bui, Vancouver BC V6B 4W4 Submitted by: L. Vince Williams

Table with columns: SAMPLE#, Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, U, Au, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, Al, Na, K, W, Hg, Sc, Tl, S, Ga, Au**, Sample lb. Rows include TR-1-300 to STANDARD G-2.

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.

UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.

ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPM

- SAMPLE TYPE: ROCK R150 60C AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: OCT 2 2000 DATE REPORT MAILED: OCT 14/00 SIGNED BY: [Signature] D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Visual		Descriptive															Assays							
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Venier %	Cl	Cp %	Bh %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
85	70	+ + + + + + + +	K- WK Phy bc chl.	240 90 265 90 150 48 100 81 245 82 230 82 220 80	→ → → → → → → →		BFP	K, wk mo Phy	man gy	7 5	1	N	<5	WK loc.	<5	-	tr.	1.5 2	<1	3- 4	py & p. f d ? small blobs. Nicely fract'd - easy to obtain good sample. Mal. @ 84 m. Hind lathrs loc.	TR-8 139		
70	85	+ + + + + +		34 82 150 60 36 90 090 87 130 70 245 90 282 80			BFP	K	man gy	5-8 5	1	N-N	<5	WK 1	-	tr.	1.5 3	2- 3	3- 4	" " " chl alt'n slightly more pervasive. ~ 85 marked as DH. but can't see it. last break till 95m. 2-3 m. slumped.	TR-8 140			
95	106	+ + + + + +		310 90 230 60 80 75 286 68 530 45 68 70 014 90		} E face of trench.	BFP	K	man gy	6- 8	1-12	N-S	<5	WK or cl	-	tr.	1- 1.5	3 5	4- 5	106-150 deep alb. Not trenched.	TR-8 141			
150	155	- - - + + + +	? ?	216 70 300 80 326 84 244 90			Zst	sil.	man gy	7- 9	0.5	M	5	-	1- 13	-	tr low	4 1-2	1-2 -	2st 150-152 BFP 152-155	TR-8 142			
		+ + + +					BFP	K	dk- man gy	8 0	0.5- 0.2	M	<5	-	1.5 loc K	tr	<5	2 3		Cp. on fract frayed in jobs. Tr. bar. V. hard - few fractures				
155	160	+ + + +		326 70 300 90			BFP	K	man gy	8- 9	0.5	N	5- 10 8-11 op	-	1.5 on fract	-	low	5	1 1	Abundant secondary bio. Txt partially obl. hold 7 bio V. well min'd. Hornfels, glassy txt.	TR-8 143			
	159m	- -	shard control - 800				X SW Zst	K	11	8	4.5	-					low	<5	4					

Less than
1 m of
O/b.

		Visual				Descriptive																Assays		
From m	To m	ROCK	FRACT	strike	dp	VEINS	Lithol	Al'n	Color	Hard	Weath	Mag	vesic %	Q	Cp %	Bn %	Mel	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
160	170			116	72		ZST	K	dk. m/m sy	8-9	S-1	W-M	5-	-	1	-	tr	1	<1	-	Still reas. horn felsed. Very hard rock. Crpy on fractures. w/ly dis. some sandy areas w/ v. weath. BFP	TRB-144		
				220	55		BFP	K	m/m sy	8	1-2	-	5	-	<1	-	-	<1	1-2	2				
170	180			210	SV	nummus	BFP	K	m/m sy	7	5	M	<5	-	<1	-	low	1.5	<1	2	Much more fract'd than previously. Lots of f.g. bio. Some areas w/ salt & pepper txt.	TRB-145		
				186	SV																			
				176	72																			
				200	v																			
180	190			010	70	nummus.	BFP	K	m/m sy	7-8	0.5	S-M	5	-	1	-	low	1.5	3	3	Still fract'd. Lose stp txt. back to typical K BFP. Episy on fracts. Minor horn	TRB-146		
				314	80																			
190	200			348	60		BFP	K	m/m sy	7-8	.5	S-M	5	-	<1	-	tr	0.5	2-3	3	txt part obl't'd stp txt locally still abund. 2 nd bio.	TRB-147		
200	205			70	70		BFP	K	m/m dk sy	8	1.5	S	5	-	.5	-	low	0.5	2-	3	A few ox'd. soft orange BFP secns. Abund. 2 nd bio (201?) @ 205m casing from Nuanetsi road out.	TRB-148		
				326	55																			
				258	46																			
				56	78																			
				70	85																			
				147	70																			

Trench joins road @ 20m

from Nuanetsi road out.



ASSAY CERTIFICATE



Pacific Booker Inc. PROJECT MORRISON File # A002217R
10th Floor - Princess Bldg, Vancouver BC V6B 4W6 Submitted by: Gordon Heary

SAMPLE#	Cu %
TR-8-143	.475
RD-4-163	.692
RD-4-170	.470
RE RD-4-170	.471

GROUP 7AR - 1.000 GM SAMPLE, AQUA - REGIA (HCL-HNO3-H2O) DIGESTION TO 100 ML, ANALYSED BY ICP-ES.
- SAMPLE TYPE: ROCK PULP Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 20 2000 DATE REPORT MAILED: July 24/00 SIGNED BY: *C. Long* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS



SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B %	Al %	Na %	K %	W ppm	Hg ppm	Sc ppm	Tl ppm	S %	Ga ppm	Au** gm/mt	Sample lb
TR-B-343	1.8	615	22	133	.7	41	21	235	3.18	169	1	<2	2	22	.2	1.1	<.5	56	.14	.033	11	24	.29	223	.012	4	1.16	.049	.29	1	<1	6.1	1	.24	3	<.01	15.0
TR-B-344	5.3	720	10	121	.7	36	14	349	3.76	88	1	<2	3	58	<.2	<.5	<.5	69	.99	.073	10	27	.74	208	.015	6	1.58	.078	.26	<1	<1	8.1	<1	.47	.6	<.01	11.0
TR-B-345	2.6	1557	46	366	2.7	27	149	372	2.40	920	2	<2	2	59	1.5	1.8	1.1	35	.77	.078	8	10	.40	217	.002	5	1.21	.092	.34	1	<1	3.5	<1	.46	.3	.05	8.0
TR-B-346	1.8	362	18	109	.3	32	16	352	4.58	60	1	<2	2	54	<.2	<.5	<.5	107	.64	.109	10	47	1.27	247	.045	3	2.27	.125	.36	<1	<1	8.8	<1	.39	.8	<.01	12.0
TR-B-347	3.7	1463	20	271	2.2	45	37	419	5.67	329	2	<2	3	19	.9	3.5	.8	76	.46	.130	11	37	.14	121	.002	2	.79	<.001	.07	1	1	8.5	1	1.22	.2	.01	7.0
TR-B-348	1.9	271	9	118	.2	23	10	255	2.75	88	1	<2	2	20	.5	1.2	<.5	69	.40	.078	11	26	.44	270	.014	5	1.22	.011	.25	<1	<1	8.9	<1	.26	4	.02	13.0
TR-B-349	1.3	339	20	119	.3	25	15	367	4.12	69	1	<2	2	55	<.2	.8	.5	66	.63	.089	15	41	.91	194	.032	6	1.65	.104	.45	<1	<1	6.0	1	.75	5	.01	15.0
GRD-350	21.0	1364	16	77	.9	62	28	403	4.35	68	1	<2	2	49	<.2	1.8	<.5	67	.98	.136	10	44	.23	226	.004	5	1.04	.002	.15	1	2	9.5	<1	.46	2	.05	14.5
GRD-351	8.6	565	4	33	.3	39	19	257	3.59	17	1	<2	2	24	<.2	2.0	<.5	50	.10	.025	10	20	.11	207	.003	4	.90	.017	.16	<1	<1	6.5	1	.41	2	.02	18.0
ST-1-352	137.4	3056	8	103	1.1	88	40	380	4.99	144	2	<2	4	31	.2	.6	<.5	99	1.08	.126	19	59	.29	170	.002	4	.91	.012	.10	<1	<1	13.2	1	.54	2.3	.09	5.0
ST-2-353	68.2	1750	7	74	.6	100	72	298	7.55	43	2	<2	6	42	<.2	<.5	<.5	104	1.09	.159	20	69	.30	112	.004	2	.85	<.001	.03	1	1	13.7	3	1.26	3	.01	5.0
ST-3-354	18.3	2054	7	90	1.5	71	28	260	4.08	65	1	<2	3	77	<.2	<.5	.5	74	.77	.089	14	53	.88	160	.069	4	2.01	.174	.54	<1	<1	8.4	<1	1.08	5	.06	5.5
ST-4-355	5.0	823	7	67	.3	54	29	229	5.62	24	2	<2	6	70	<.2	<.5	<.5	138	.91	.154	18	92	2.22	194	.303	3	2.40	.155	1.50	2	<1	10.5	1	1.14	9	.01	1.5
RE ST-4-355	4.6	804	8	67	.3	53	30	222	5.48	27	2	<2	6	68	<.2	<.5	<.5	135	.89	.156	18	93	2.16	192	.295	2	2.33	.152	1.47	2	<1	10.2	1	1.15	9	<.01	-
GRD-TR-1-356	13.8	607	6	50	.2	40	18	178	2.71	45	2	<2	4	66	<.2	<.5	<.5	73	1.17	.078	16	59	1.29	319	.148	6	1.71	.079	.92	<1	<1	7.0	1	.36	6	.02	7.0
GRD-TR-3-357	1.3	331	3	29	.1	34	17	374	5.03	5	1	<2	2	20	<.2	<.5	<.5	104	.14	.040	13	35	.52	167	.054	3	1.95	.045	.21	1	<1	7.9	1	.43	5	<.01	3.0
GRD-TR-2-358	40.0	3196	6	64	1.0	66	32	283	3.72	14	1	<2	2	15	<.2	.5	<.5	54	.09	.020	10	21	.18	188	.033	3	1.04	.035	.26	1	<1	7.1	<1	.91	2	.08	7.0
GRD-TR-1-359	4.8	308	3	29	.1	22	12	374	2.74	13	1	<2	2	38	<.2	<.5	<.5	29	.39	.054	13	27	.47	223	.022	5	1.29	.093	.42	1	<1	2.5	<1	.21	3	<.01	6.5
STANDARD C3/AU-1	26.6	68	34	167	5.3	36	12	791	3.35	56	23	2	22	28	21.9	15.8	22.6	80	.59	.092	21	176	.61	157	.092	22	1.84	.036	.16	15	1	4.5	1	.03	6	3.69	-
STANDARD G-2	1.5	3	3	44	<.1	7	4	559	2.06	<1	3	<2	4	72	<.2	<.5	<.5	42	.67	.100	11	79	.63	233	.145	3	.97	.078	.48	2	<1	2.7	1	<.01	4	<.01	-

Sample type: ROCK R150 60C. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

(ISO 9002 Accredited Co.)

ASSAY CERTIFICATE



Pacific Booker Inc. PROJECT MORRISON File # A002217R
10th Floor - Princess Bui, Vancouver BC V6B 4W4 Submitted by: Gordon Heary

SAMPLE#	Cu %
TR-8-143	.475
RD-4-163	.692
RD-4-170	.470
RE RD-4-170	.471

GROUP 7AR - 1.000 GM SAMPLE, AQUA - REGIA (HCL-HNO3-H2O) DIGESTION TO 100 ML, ANALYSED BY ICP-ES.
- SAMPLE TYPE: ROCK PULP Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 20 2000 DATE REPORT MAILED: *July 24/00* SIGNED BY: *C. Heary* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Trench # TR-9
Orientation/length E-W

MAY 15, 2000

loc. 74
G.W., E.O.

Location -12 m W of DH-8, S. Zone

Page 1 of 1

(3288N, 3820E - 3272N - 3610E)

Visual		Descriptive														Assays								
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veriel %	Cl	Op %	Bn %	Mal	Py %	Cal Cb %	Bio %	Description	Sample No	Cu %	Au g/t
0	2	baked zst.	/	262	90		zst	baked (ch.fed?)	Pale gy to buff	5-6	2-3 (only on surface)	-	45	-	-	-	-	2-3	-	-	v.f.g. Very rubbery & friable. Quite good exposure but broken up py on first 5 vlets. Some sw fractures but mainly lg. fract - vert. Hard to break.	TR-9 102	.02	0.02
2	4		/	253	90																			
4	6		/	356	90																			
6	8		/	240	90																			
8	10			290	90																			
10	20			330	10																			
				40	75																			
				130	90	/py																		
				80	45																			
22	24	BFP					BFP	K	dk. gy	7	2 (surf.)	W	45	W				3-4	4	2	BFP @ ~22.0m. Looks v. sim. to top of MD-6. Py up to 5/ blebs? fract. smears mainly BFP but some zst (could be cherty). @27m. q-ser. alt'n-	TR-9 103	.05	0.01
24	27	minor zst																						
27	30	BFP								7.5	2	-						4	4	-				
30	38	BFP					BFP	strong phyl. chl. phyl.	bl'd to buff gray bl'd to buff		3													
38	40										2													
40	43	zst.					zst	baked (ch.fed?)	pale gy.	6	2		45	N				2			@43.0 - baked zst w/ sl. inc. in g. vining. Coarse py in vlets. Inc. in sw fractures & vining.	TR-9 104	2.01	2.01

		Visual					Descriptive															Assays			
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Ventel %	Cl	Cp %	En %	Mal	Py %	Cal/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
130	132	+					BFP	Phy (k)	lt. dk. gy	7-8	1	N-ct.	2-3	-	-	-	-	3-4	4-5		* Contact w/ mixed band Biphyty, Mnst Cp	TR-9 110	.12	0.02	
	140	+		27	80			Ac Above										Ac above							
	165	+								7															
	175	+		105	90		BFP	K	dk gy	9	1	N	3-4	1-2	1	-	-	3	4-5		- Kall'd BFP w/ ↑ Py Grade inc. @ 162. Mino f.d. Cp Blebs f. f.d. py also micro vnlts.	TR-9 111	.32	.12	
	185	+		120	90		BFP	K w/chl	gnish gy		1		2	M-S	1	-	162 mal blb	3-4	tr	1					
	195	+		190	90		BFP	K	dk gy		1-2	M-S	2	WK	.3	-		2	3	0	3	Strong mal stain @ 166 m @ 167 wk chl, 168 mod. st. Txt is dk loc. obl w/ 2 nd bio by smears on fract. ev. py & blebs Hem + cl alt'n @ 172.	TR-9 112	.24	.13
	200	+		278	74			k/cl		78															
	210	+		340	72																				
	220	+		106	90																				
	230	+		080	35																				
	240	+		196	80		BFP	K	v. dk gy		1	wk	2-3	2-3	.4	0		4	.5	0.2					
	250	+		210	88																				
	260	+		220	90		BFP		"	8	1		2-3	WK	.7	0	rob	4	.5	2	Grade inc @ 175 m but is not consistent. txt. obl + -ab. py. Hem specks. Txt less obl + less 2 nd bio @ 190m.	TR-9 113	.11	0.02	
	270	+		108	82																				
	280	+		90	90			K																	
	290	+		000	90																				
	300	+		016	90		BFP	prop.	Lid wh.	3-4	2	-		0	tr	-				0	@ 194 clay gunc 194 - prop. phyl. 8. ser. alt'n.				

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Visual		Descriptive																		Assays				
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Venier %	Cl	Cp %	Bn %	Mal	Py %	Cal/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
250	260	+ + + + +					BFP	Phy	lt. gy	8-9	4	N	5?	N	0	0	Th	3	Th	<1	~ 263. Pm-P(ch) sec n - to ax, poorly Competent (Note: bottom of Tank wet, mopped table) - Th. Py fract's	TR-9 115.	0.08	0.04
260	270	+ + + + + +	Phy K	290	90		BFP	K	dk. gy	7-8	2-3	N	5-8	W	<1	Th	Th	2	0	3-4	- Slight inc. in Cp as disc. blba @269-40cm the. zero? prop. H BFP.	TR-9 116	.25	.09
270	280	-+ -+ -+ + + +		270	80		BFP	Prop pet. sil.	bid	4-8	3-4	-	25	N	<1	-	tr.	2-3	-	1	- low fract'd py+hem on fract's. siltston lics wk SW Vhng. lines on N wall of trench. 270-274 274-280 tot well pres. Asp.	TR-9 117	.28	.23
280	290	+ + + + + +		200	85	concretion.	BFP	K	dk gr to morn gy.	7-9	1-2	-	25	-	<1	low	2-3	tr.	4		Txt v. well preserved 5% hbl. latites (22 bio) 3-4% py. on fractures, gobs + marks Ab. fig. bio. @280. min mal. wk @288 ↑ cp. dk K up to 15%.	TR-9 118.	.61	.17
290	300	+ + + + + +	K	255	80		BFP	K	dk gy. wdn gy.	7	1-2	W	<5	-	1.5	-	tr.	2	tr.	3-4	Py in masses. cp f d Numerous remnant fracts A few H morn gy sec ns	TR-9 119	.46	.13



GEOCHEMICAL ANALYSIS CERTIFICATE



Pacific Booker Inc. PROJECT MOR File # A001501
 10th floor - Princess Bul, Vancouver BC V6B 4W4 Submitted by: Gordon Heary

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Tl	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Au**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	ppm	ppm	ppm	ppm	%	ppm	oz/t		
TR-9-102	3.9	167	40	104	.7	55	11	158	2.58	51	<1	<2	3	18	.9	2.1	.8	19	.15	.068	9	20	.26	133	.004	3	.85	.031	.43	<1	<1	1.6	<1	.75	2<.001	
TR-9-103	1.9	519	41	622	1.8	79	22	656	6.34	95	1	<2	4	17	4.7	9.6	.7	70	.27	.112	16	47	.72	36	.034	3	1.25	.021	.45	<1	1	6.4	1	1.76	3<.001	
TR-9-104	6.2	75	32	89	.8	40	14	111	2.27	43	<1	<2	4	16	.7	1.9	.6	12	.04	.020	15	11	.09	92	.004	8	.49	.013	.29	<1	<1	1.5	<1	1.34	1<.001	
TR-9-105	18.5	2385	26	153	1.9	88	29	396	4.23	14	2	<2	3	36	1.0	2.0	1.7	64	.61	.119	11	52	1.27	36	.060	8	1.42	.041	.59	1	<1	3.9	<1	1.69	5.005	
TR-9-106	4.6	494	63	263	1.1	58	20	233	2.45	165	1	<2	2	16	1.6	2.6	<.5	37	.31	.105	14	32	.57	194	.040	8	1.09	.026	.63	<1	<1	3.0	<1	.67	4<.001	
TR-9-107	4.0	243	119	389	1.6	28	6	166	2.42	1951	<1	<2	3	6	2.8	8.8	.6	14	.04	.022	10	15	.15	186	.003	2	.69	.017	.43	1	<1	1.0	<1	.37	1.002	
TR-9-108	16.7	107	86	60	1.4	12	3	34	1.90	5643	<1	<2	2	4	<.2	16.9	.9	10	.01	.014	8	13	.05	122	.001	2	.37	.012	.26	<1	<1	.8	<1	.44	1.006	
TR-9-109	15.6	301	45	138	1.6	66	14	148	3.25	112	<1	<2	4	10	1.3	1.6	<.5	27	.04	.044	14	26	.14	89	.003	<1	.85	.021	.50	<1	<1	2.7	<1	.63	2<.001	
TR-9-110	16.2	1152	12	58	.8	38	16	151	3.36	24	1	<2	5	29	.3	2.1	.6	92	.72	.102	12	35	1.32	52	.114	7	1.34	.062	.59	<1	<1	7.0	<1	1.02	6<.001	
TR-9-111	6.9	3165	27	82	1.8	53	23	388	5.19	15	1	<2	5	38	.4	1.8	2.0	127	1.12	.128	13	66	1.84	36	.209	8	1.62	.086	.89	<1	1	10.0	<1	1.28	7.003	
TR-9-112	8.8	2462	11	52	1.2	51	19	145	4.59	7	1	<2	6	23	<.2	<.5	1.5	132	.39	.125	11	106	2.28	83	.286	6	2.00	.076	1.12	<1	1	10.6	<1	.95	9.004	
RE TR-9-112	8.7	2462	11	48	1.1	51	18	143	4.81	6	1	<2	5	23	.3	<.5	1.6	131	.38	.123	11	106	2.25	99	.283	3	1.97	.075	1.11	<1	1	10.5	<1	.94	9.002	
TR-9-113	11.6	1138	10	53	.6	52	17	134	4.83	5	1	<2	6	22	.2	<.5	1.1	136	.38	.130	9	94	2.32	70	.234	2	1.98	.077	1.04	1	1	10.2	<1	1.09	9<.001	
TR-9-114	61.6	1434	284	239	8.6	71	21	278	5.11	35	1	<2	5	48	.6	12.8	4.4	83	.48	.121	14	53	.53	29	.039	2	.99	.013	.30	<1	4	8.3	<1	1.44	3.003	
STANDARD C3/AU-1	27.9	68	36	164	5.8	35	12	790	3.24	61	24	<2	21	29	26.3	13.6	23.9	83	.59	.089	19	169	.64	156	.093	27	1.85	.045	.19	16	1	4.5	<1	.02	8.102	
STANDARD G-2	1.5	4	3	36	<.1	7	4	514	1.95	1	2	<2	4	71	<.2	.8	<.5	40	.64	.096	8	75	.58	220	.131	5	.93	.083	.48	2	<1	2.5	<1	<.01	5<.001	

GROUP 10X - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES.
 UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
 ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
 - SAMPLE TYPE: ROCK AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: MAY 17 2000 DATE REPORT MAILED: June 2/00 SIGNED BY: C. Leong TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

AA
LL

ASSAY CERTIFICATE

AA
LL

Pacific Booker Inc. PROJECT MORRISON File # A001907R

10th Floor - Princess Bul, Vancouver BC V6B 4W4 Submitted by: Gordon Neary

SAMPLE#	Cu %
2000-TR-9-118	.626
2000-TR-9-127	.502
2000-TR-9-128	.574
RE 2000-TR-9-128	.576
STANDARD R-1	.843

GROUP 7AR - 1.000 GM SAMPLE, AQUA - REGIA (HCL-HNO3-H2O) DIGESTION TO 100 ML, ANALYSED BY ICP-ES.
AU - 10 GM REGULAR ASSAY.
- SAMPLE TYPE: ROCK PULP Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 6 2000 DATE REPORT MAILED: *July 13/00* SIGNED BY: *C. Leong* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

(ISO 9002 Accredited Co.)

ASSAY CERTIFICATE



Pacific Booker Inc. PROJECT MORRISON File # A001907R
10th Floor - Princess Bldg, Vancouver BC V6B 4W4 Submitted by: Gordon Heary

SAMPLE#	Cu %
2000-TR-9-118	.626
2000-TR-9-127	.502
2000-TR-9-128	.574
RE 2000-TR-9-128	.576
STANDARD R-1	.843

GROUP 7AR - 1.000 GM SAMPLE, AQUA - REGIA (HCL-HNO3-H2O) DIGESTION TO 100 ML, ANALYSED BY ICP-ES.
AU - 10 GM REGULAR ASSAY.
- SAMPLE TYPE: ROCK PULP Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 6 2000 DATE REPORT MAILED: July 13/00 SIGNED BY: *C. Heary* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS



GEOCHEMICAL ANALYSIS CERTIFICATE

Pacific Booker Inc. PROJECT MORRISON File # A002217 Page 1
10th Floor - Princess Bui, Vancouver BC V6B 4W4 Submitted by: Gordon Weary

Table with columns: SAMPLE#, Mo, Cu, Pb, Zn, Ag, Ni, Co, Mn, Fe, As, U, Au, Th, Sr, Cd, Sb, Bi, V, Ca, P, La, Cr, Mg, Ba, Ti, B, Al, Na, K, W, Hg, Sc, Tl, S, Ga, Au**. Rows include TR-8-134, TR-8-135, TR-8-136, TR-8-137, TR-8-138, TR-8-139, TR-8-140, TR-8-141, TR-8-142, TR-8-143, TR-8-144, TR-8-145, TR-8-146, TR-8-147, TR-8-148, RE TR-8-148, TR-10-149, TR-10-150, TR-10-151, TR-10-152, TR-10-153, TR-10-154, TR-10-155, TR-10-156, TR-10-157, TR-10-158, RD-4-159, RD-4-160, RD-4-161, RD-4-162, RD-4-163, RD-4-164, RD-4-165, RD-4-166, STANDARD C3/AU-1, STANDARD G-2.

GROUP 10X - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY OPTIMA ICP-ES. UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM. ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPM. - SAMPLE TYPE: ROCK AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 10 2000 DATE REPORT MAILED: July 19/00 SIGNED BY: [Signature] D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

		Visual				Descriptive														Assays					
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weather	Mag	Vermet %	Cl	Cp %	Bn %	Mel	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
30	33	+ + + D. D. D. D.	poor				BFP	K-sil wk phy.	H. jy	6-2	2-3	-	LS	v. wk	<1	-	-	<1	3-4	<1	Bedrock begins @ ~ 20m depth. Only a few good exposures. Several large boulders in till. (min's BFP)	RD-4 159.			
40	50	o. o. o. o. o. o. o.	no				TILL														min'd BFP's min'd K zst. in large boulders in till				
52	60	- + + D. D. D. D.	poor				BFP	K py- ton	H. jy	8-9	1	M	LS	wk	M	1+	-	-	<1	3	1-2	@ 52m - one large boulder on BIR Secondary bios GRAB SAMPLE	RD-4 160		
60	65	+ + + D. D. D.	poor				BFP	py- ton K- (prop)	H. py-ton jy	7	2-3	-	LS	-	LS	-	-	0.5	3-4	-	Bio → ser. Weakly. Some of this rock may be subcrop. F.d. cp py & w/ py on frags in MAESSES JOINTRY @ 72 m.	RD-4 161			
66	70	D. D. D. D. D. D.					prob	SFD. K- v. sil.	mem jy	8-9	1-2	-	5-6	W	2+	-	M	0.5	3-	-	Abund. j. v. frag. fragmented & weathered. unsure of lith to 72m. then it defin. zst cp f.d. on frags.	RD-4 162			
70	72	+ + + D. D. D. D.	fragmented				prob	SFD. K- v. sil.	mem jy	8-9	1-2	-	5-6	W	2+	-	M	0.5	3-	-					
77	80	+ + + D. D. D.	poor				BFP	OXD. ORA-WH.	ORA-WH.	2-3	4-5							M	5-4	?	BFP is weathered & oxd zst. mal common on fact.				

		Visual				Descriptive															Assays			
From m	To m	ROCK	FRACT	strike dip	VEINS	Lithol	All'n	Color	Hrd	Weath	Mag	Verneil %	Cl	Cp %	Bn %	Mal %	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
80	90	△ △ △ △ △				TILL																		
90	92	△				ZST	SIL (K)	non ss	9	1	-	5	1	1.5	-	FR	-	1.5			TILL top exposure. ZST pervasive silicified (K) f.d. throat also on Rd	RD-4-163		
92	94	+ +				BFP	py K	non ss	8	1-2	-	LS												
94	97	+ +				ZST	SIL-K	non ss AS	8	1-2	-	LS									WEEB MIND			
97	98	+ +				ZST	SIL-K	non ss AS	8	1-2	-	LS												
98	100	+ +				BFP	K	non ss	7	1-2	-	LS									crumbly 9' oxid.			
100	105	△ △ △ △ △ △ △ △				TILL BFP	K	non ss	6	1-2	S	5		LS		L4					2 point sources - @ 105m & @ 109. Dk gy K BFP - 1 abund. 2nd bio. mal. in several bundles.	RD-4-164		
105	109	+ +				AS ABOVE																		
110	112	△				TILL			7	0-1	M	LS									F.d. cp. abund. 2nd bio.	RD-4-165		
112	120	+ + + + + + + + + +	Sub crop mainly			BFP	K sil.	non ss	7	0-1		LS												
120	124	△ △ △				BFP	K	non ss	7	1	W	LS									Very small grab zone 2	RD-4-165		
124	126	+ +	subcrop			ZST	K	gy- J-	8	<1		LS									Abund. 2nd bio. Siliceous.			
126	127	△				BFP	AS	Above																
127	129	+ +	subcrop			BFP	AS	Above																

July 4

Trench #
Orientation/length N-S

L0

aged J.

Visual		Descriptive															Assays								
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Wearth	Mag	Vermet %	Cl	Co %	Bn %	Mal	Py %	Ca/ Cd %	Bio %	Description	Sample No.	Cu %	Au g/t	
130	135	Δ Δ Δ					TILL															-g. viny	RD 4 167		
135	136	++ BFP Δ till					BFP	K Sill	lt gy	8	2	-	5-10	WKC								becomes v. weathered - strong Fe ox + Javel @ 139			
139	140	++ BFP					BFP	oxid	orange wh	4-	5	-	?												
140	1415	2 m across Δ Δ Δ Δ Δ Δ					ZST till	oxid K Sill	man Syl	9	1-15	-	25	V WK								TXT abtd	RD 4 168		
	148-150						ZST		sim to above													some v. viny	↑		
150	152	Δ Δ Δ Δ Δ Δ Δ Δ																				More weathered - diff. to depth.	160		
		} no sample					till																		
160	161	- ZST							dk gry	8	<1	-	10	V WK								Lots of fractures	169		
161	162	++ BFP							dk gy	7	<1	-	5	W WK											
162	163	++ BFP							green	2	3	-	low	S								dk y non prop material			
163	164	++ BFP																							
164	170	- ZST																							
170	170	+ BFP + + + +		320	64		BFP	kaol.	bid, wh	5-6	3	-										BFP is kaolinized but complete bleached g-ser.	170		

Orientation/length N-S. 400m. Access road from North to cent-south areas.

		Visual				Descriptive															Assays			
From m	To m	ROCK	FRACT	strike	dp	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Vein %	Cl	Op %	Bn %	Mel	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au %
180	190	MIX BFP BFP BFP					ZST BFP	K-sil K	mdm gy dk gy	8 9	1-2 1	-	5-10 5	v. wk -	5 3	-	tr. mod	2-3 1	-	-	Really thin impure 105m v. vell min'd BFP few fresh bios-lobes cp. f.d. + l.bls. f. coarse diss.	RD4 171		
190	194						BFP	K-sil	dk gy	9	1	2-3	25	-	15-25	-	mod	1	1	Horstfeld, mod. F. d. col. pp, py mainly on fract	RD4 172			
194	200						ZST	K-phy (sil)	tr. gy	10	1	-	5	w	1	-	1	1	F. d. op. mat. + zst plat bench last 3m. Insert @ 200m.					
200	207	MIX BFP BFP ZST					ZST BFP	phy K	tan mdm gy	7 8-9	1 1	-	5 5	-	5 15	-	tr. L	5 15	2 3	210 sample a beginning of tr. 5. F. d. op. l.bls of py	RD4 173			
210	211	BFP					BFP	oxid	oran	4-6	4	-	?	?	-	-	2	1	Becomes highly oxidized @ 210m-	RD4 174				
211	215	K					BFP	K	mdm gy	7	1-1.5	-	25	v. wk	1-2	-	2	1	211-then rns to dk gy BFP w/ l.bls					
215	216	phy					"	phy	brn (tan)	7	1	-	25	-	1	-	15	3	Hem. stain from 211 phy. alt'd @ 215m. zst @ 216m					
216	220	ZST					ZST	phy-k	gy-tan	8-10	1-1.5	-	5-7	-	5	-	2-3	3						
220	228	ZST					ZST	K-sil	gy	8-10	1-1.5	-	3-5	NH M	5	-	2	2	cp in m. v. l.bls. Horstfeld siliceous v. wk hem. stain locally	RD4 175				
228	230	TILL																						

↑
RSD
Large
@ rts
sample

Trench # RD-4
Orientation/length N-S

Location
past the beaver pond

		Visual				Descriptive															Assays			
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	venet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
230	235	TILL					TIL	no	Exposure															
235	236	ZST					ZST	K ₁	man	7-9	1-2		4-5		1-2				0.5					
236	239	BFP		340	74		BFP	K	man	7	<1		L		1-2		tr.	1-2	1-4					
239	240	ZST		040	90		ZST	Py	man	5-7	3-4		L		1-2		tr.	1-2	1-4					
240		ZST		020	70		ZST	Py SIL	tan	8-9	3-4		5-7		?		low	?	2					
240				154	70																			
246		BFP					BFP	K	dk	7	<1		L		1-1.5				1-1.5					
247																								
250		ZST					ZST	K	man	9-10	0.5		L		1-1.5				1-1.5					
250				130	70																			
260		ZST		200	80		ZST	K	man	9	0.5	M	L		0.5-0.7				1-1.5					
260				50	87																			
270		ZST					ZST	K	man															
270	280			130	63																			
				160	88																			
				057	90																			
				000	90																			
				550	70																			

Op in vne & v.f. dits.
(cp smears on frad)
The best expos.
of this trench
so far. Abund
chips - rocks a 0.5 -
2m depth.

RD 4
180

		Visual				Descriptive															Assays				
From m	To m	ROCK	FRACT	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
330		+ BFP					BFP	AS	PREVIOUS																
333		+ ZST	III	030	20		ZST	K	mdm gry	7	0.5	-	LS	-	0.5	-	-	LS	1			ZST w/ stonger fracturing.	RD4 186		
	340																								
340		Δ TILL					TILL															344 ~ intersection w/ TR-6	RD4 187		
343		- ZST					ZST	K	mdm gry	6-7	1	M	5	-	0.5	-	-	LS				Locally mushy. clay rich, oxid. orange.			
	350	+ BFP					BFP	K	stm to previous BFP																
350		+ BFP					BFP	OND	ovms		4c											Not sampled too weath'd.	N/S		
351		- TILL																				351-300 m TILL - good till w/ ZST & BFP			
	360																								
380	390	+ BFP					BFP	Phyl-SIL	H. gyt-tn?	7-10	0.5-1.5	-	LS	-	tr.	-	-	LS	1-2	3		V. difficult to obtain samples - v. hard and few frags or too strong ly oxid. 1st bio not totally fresh	RD4 188		
		+ BFP																							
		+ BFP																							
389		+ ZST					ZST	phy.	tn	6	0.5	-	S-7	-	tr.	-	-	LS	1			SW fracturing			
		- ZST	III	080	50		ZST	K (pm)	mdm gry	6-9	0.5	-	S+	-	0.5	-	-	LS	1			mainly K alt'n w/ localized phy (often w/ K). conc very sil. Fd. Pyrite (and in fract's). Fingering of BFP + ZST.	RD4 189		
		- ZST		235	82																				
		- ZST		140	30																				
400							BFP	phy	tn	8-9	0.5	-	LS	-	0.5	-	-	LS	0.7	2.5	0.5				
		+ BFP																							
405		+ BFP																							

EOT.

Bkbs of cpt py



SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Hg	Sc	Tl	S	Ga	Au**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	%	ppm	ppm	ppm	ppm	%	ppm	gm/mt
RD-4-167	27.4	3364	41	1068	2.5	73	16	603	4.28	1581	<1	<2	7	33	.8	19.8	4.7	58	.44	.055	12	45	.25	168	.003	4	.86	.018	.30	1	<1	6.1	<1	.56	<1	.10
RD-4-168	73.1	3741	6	63	.8	88	21	274	2.58	17	<1	<2	10	25	.3	.9	1.5	62	.29	.046	13	65	.23	415	.004	3	.84	.041	.24	1	<1	9.6	<1	.38	2	.06
RD-4-169	25.2	1761	4	53	.3	43	9	263	2.34	5	<1	<2	7	20	<.2	.5	.8	73	.29	.051	12	71	.56	402	.093	4	.98	.048	.39	1	<1	6.9	<1	.17	4	.06
RD-4-170	21.4	4937	5	51	2.0	31	8	226	1.62	26	<1	<2	4	16	<.2	<.5	.9	31	.18	.038	5	39	.19	527	.022	2	.52	.025	.15	4	<1	3.1	<1	.24	2	.06
RD-4-171	57.1	3079	5	48	.7	63	17	157	3.26	<1	<1	<2	6	78	<.2	<.5	<.5	130	.43	.112	12	99	1.66	347	.266	5	1.87	.092	1.21	1	<1	12.9	1	.47	8	.09
RD-4-172	49.2	3091	8	55	1.0	41	12	128	2.45	12	<1	<2	8	28	.2	<.5	.8	86	.28	.081	14	62	1.01	361	.169	3	1.62	.057	.79	1	<1	9.4	1	.47	5	.09
RD-4-173	15.6	2379	4	56	1.1	62	20	187	3.40	2	<1	<2	6	33	.2	<.5	.8	93	.55	.128	9	67	1.28	176	.199	1	1.33	.092	.64	1	<1	5.2	<1	.78	5	.05
RD-4-174	26.0	3156	13	197	3.7	59	12	350	3.65	38	<1	<2	8	52	.8	1.8	1.3	93	1.26	.129	13	63	1.22	123	.141	4	1.28	.060	.51	1	<1	6.9	<1	.74	4	.05
RD-4-175	6.2	1018	23	165	.6	28	8	427	2.60	13	<1	<2	8	27	.4	<.5	<.5	43	.08	.015	17	16	.28	487	.024	3	1.03	.025	.23	<1	<1	7.2	<1	.24	2	.01
RD-4-176	29.2	1852	4	92	1.5	52	13	370	3.63	6	<1	<2	8	37	.3	<.5	.7	94	.53	.103	13	79	1.56	394	.117	2	1.95	.064	.58	1	<1	8.8	1	.35	6	.03
RD-4-177	23.9	1594	7	55	1.0	35	10	175	2.15	6	<1	<2	8	29	<.2	<.5	<.5	57	.25	.058	11	32	.72	420	.080	2	1.15	.065	.53	1	<1	7.2	1	.41	4	.05
RD-4-178	101.1	1771	7	92	1.4	43	10	242	2.56	15	<1	<2	7	28	.3	<.5	.8	38	.29	.051	12	24	.26	223	.004	1	1.09	.042	.26	<1	<1	6.4	1	.53	2	.04
RE RD-4-178	92.3	1771	7	89	1.4	44	10	239	2.58	14	<1	<2	7	27	.4	<.5	<.5	38	.29	.051	12	24	.26	206	.004	2	1.08	.041	.25	<1	<1	6.3	<1	.55	2	.04
RD-4-179	21.2	1625	7	99	1.4	55	22	299	3.32	9	<1	<2	8	22	.5	<.5	<.5	69	.27	.084	11	35	.70	264	.033	3	1.50	.043	.33	1	<1	7.1	<1	.55	4	.02
RD-4-180	25.6	937	4	37	.5	51	14	267	3.73	4	<1	<2	5	19	.2	.9	<.5	83	.16	.064	12	38	.57	232	.066	3	1.77	.048	.30	1	<1	8.2	<1	.49	4	.01
RD-4-181	18.7	847	6	44	.7	40	14	186	2.46	10	<1	<2	8	19	.2	<.5	<.5	59	.10	.034	12	25	.37	259	.050	<1	1.22	.046	.23	<1	<1	7.0	<1	.44	3	.02
RD-4-182	96.4	1865	7	180	2.6	62	20	369	4.12	49	<1	<2	5	35	.7	<.5	<.5	130	.52	.124	10	98	2.05	266	.177	5	2.35	.072	.84	1	<1	10.3	<1	.54	10	.06
RD-4-183	44.7	1736	8	168	3.0	59	31	402	4.99	23	2	<2	11	33	.7	<.5	1.0	108	.72	.138	12	72	1.80	149	.122	5	2.13	.073	.58	1	<1	8.3	<1	.95	9	<.01
RD-4-184	23.8	1343	50	385	2.4	49	10	596	4.45	56	<1	<2	11	23	1.3	<.5	1.5	100	.50	.123	20	64	1.60	358	.086	5	2.11	.050	.46	2	<1	7.0	<1	.28	8	.02
RD-4-185	5.3	1143	6	105	2.3	36	10	283	4.38	5	<1	<2	8	26	.2	<.5	<.5	74	.32	.048	16	38	.89	225	.056	2	1.93	.048	.33	<1	<1	5.8	<1	.67	5	<.01
RD-4-186	22.9	988	9	206	3.2	31	10	350	3.60	71	<1	<2	5	25	1.0	<.5	<.5	58	.62	.067	8	38	.78	182	.003	4	1.62	.048	.27	<1	<1	5.7	<1	.30	4	.02
RD-4-187	3.6	301	5	77	.4	22	11	205	4.32	12	<1	<2	5	31	.3	<.5	<.5	55	.30	.122	10	24	.58	155	.006	<1	1.92	.063	.22	1	<1	5.3	<1	.20	4	<.01
RD-4-188	6.2	527	28	181	1.1	46	20	348	3.65	62	<1	<2	7	52	.6	1.1	.6	59	.70	.089	9	32	.51	192	.007	4	1.20	.028	.28	1	<1	6.9	<1	.82	3	<.01
RD-4-189	7.1	982	21	203	3.6	45	75	981	4.13	1964	<1	<2	4	138	.8	10.6	1.2	55	1.39	.072	3	22	.43	120	.002	4	.86	.013	.22	<1	<1	5.9	<1	.59	<1	.03
STANDARD C3/AU-1	26.6	(73)	36	167	5.5	37	11	796	3.32	57	24	<2	26	30	23.8	16.3	22.3	83	.56	.099	18	178	.63	172	.095	23	1.97	.040	.19	16	1	4.6	2	.03	7	3.57
STANDARD G-2	1.5	19	2	41	<.1	7	2	537	2.02	<1	1	<2	7	72	<.2	<.5	<.5	43	.63	.102	8	77	.60	238	.131	2	.96	.074	.48	2	<1	2.7	<1	<.01	5	-

RD
A

Sample type: ROCK. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

3

ASSAY CERTIFICATE



Pacific Booker Inc. PROJECT MORRISON File # A002217R
10th Floor - Princess Bldg, Vancouver BC V6B 4W4 Submitted by: Gordon Weary

SAMPLE#	Cu %
TR-8-143	.475
RD-4-163	.692
RD-4-170	.470
RE RD-4-170	.471

GROUP 7AR - 1.000 GM SAMPLE, AQUA - REGIA (HCL-HNO3-H2O) DIGESTION TO 100 ML, ANALYSED BY ICP-ES.
- SAMPLE TYPE: ROCK PULP Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 20 2000 DATE REPORT MAILED: *July 24/00* SIGNED BY: *C. Leong* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

CAROL SAMPTSON

Visual			Descriptive																	Assays						
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Vein t %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t	
0	1	O/B																								
1	6	++	236	54	131	53		BFP	K-minor Phyll	dk-med gry	6	1-2	N		N	0	0	0	5	0	5-8		LNRD-389			
6	10	--	189 63	69 32	70	90		ZS	phyll & clay	lt brn/med gry	<6	1-3	N		0	0	0	0	0	0		a highly fract'd zone at 8 m; contact is at 10778 and adjacent to bx'd zone; bx'd zs is at 9 m	LNRD-389			
10	20	--	55	89	15	81		BX'D ZS W/BFP DYKE	phyll & clay	med-lt gry	<6	1-2	N	8-10	N	0	0	0	5	0		bx frags are coarse and fine grained zs; BFP is sub-	LNRD-390			
								BFP DYKE	phyll & clay	lt blue/lt gry	5-6	1-2	N	8	N	Tr	0	0	<3	5	-	horizontal at ~27/37; fract'd zone at 20 m	LNRD-390			
20	24	--						ZS	phyll	lt gry/med gry	5	2-3	N	8	N	5	0	0	5	0	-	strat. Higher ZS only has cp	LNRD-392			
24	30	++	212	72				BFP	phyll	lt gry	5-6	1-2	N	8-10	N	5-7	0	0	5-1	5	-	very oxid along fract's; cp along vnits	LNRD-392			
30	40	++	196	71	354	52		BFP	phyll	lt gry/blue	5	1-2	N	<5	N-W	<5	0	0	<5	0	0	py along fract's and vnits; cp decreases down interval	LNRD-393			
40	41	O/B						O/B																		
41	43	++						BFP	phyll	lt gry/blue	5	1-2	N	<5	N-W	<5	0	0	<5	0	0			LNRD-394		
43	50	+++						BFP & ZS/SS	phyll	lt brn/lt gry	4-6	1-3	N	0-10	N-W	0-Tr	0	0	5	0	0	ZS/SS is highly frac'd & oxidized; either many dykes of BFP or xenoliths of ZS/SS (unknown); py vns up to 5 mm thick	LNRD-394			
50	57	--						SS/ZS	K	gry	4-7	1.5	-	<1	-	-	-	-	-	<1	-	small Bx w/ SS and ZS at 50.5m; 50.5-57 m is mainly ZS	LNRD-395			
57	60	till						till																		
60	64	++						BFP	K (phyll)	med gry	5	1-1.5	W	3-4	-	4-6	-	-	2	<1	5-7	60-69 BFP discontin but ~70% bedrx; fresher bio books	LNRD-397			
64	64	till						till														good quality till	LNRD-512			
64	69	++						BFP	K (phyll)	med gry	5	1-1.5	W	3-4	-	4-6	-	-	2	<1	5-7		LNRD-397			
69	70	...						SS	phyll	lt gry	4	1	-	1-2	-	-	-	-	<1	-	-		LNRD-397			
70	77	---	36	90	350	90		ZS/SS	K	dk gry	5	.5	-	-	-	-	-	-	-	-	-	ZS is interbedded with coarser sed's; fine-med ss	LNRD-397			
77	78	---						BX sed's & BFP	K	dk gry	7	2	-	5	-	-	-	-	1	-	-		LNRD-397			
78	79	--						ZS	K	dk gry	7	1-2	-	<2	-	-	-	-	.3	-	-	78-79 bx'd ZS	LNRD-397			
79	80	...						SS	phyll	lt gry	7	1-3	-	-	-	5-7	-	low	tr	-	-	79-80 fract's zone w/ mal and blebs of cp	LNRD-397			

Visual			Descriptive																	Assays						
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veinle t %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Blo %	Description	Sample No.	Cu %	Au g/t	
80	81							SS/wacke		gry												SS is very hard: either silicified or composed of mainly Qz; less than 10% frags of 1 mm	LNRD-397			
81	90																					at 81 m is end of bedrock; same spl as previous (397); 90-85 caved	LNRD-511 (@85 M)			
90	100	O/B						O/B														in (poorly consol. Sand/gravel/slump). Deep overburden: 5-4.5 m deep	NO SMPL			
100	105	++						BFP	phyll/arg/K	lt gry/med gry	2-5	2-3	-	0-3	W	5-1	-	-	1	-	2-3	cp on Qz vn, 1 mm thick? V f cp specks; discontinuous exposure	LNRD-399			
105	110	till						till		excellent basal till at 3.25m depth: sample taken at 110 m												102 - 103 m till on either side; BFP float up ice of bedrx;	LNRD-510			
110	120	till						till														predominant clast @ base is mdm-dk gry ZS; unmin but minor py vns; also SS with 10% 1-2 mm size frags (chert, qz, etc.) till @ 3 m depth; float: blk BFP, gry ZST; poorly mineralized	NO SMPL			
120		S/G	120 cm					sand & gravel														imbricated				
		sand	170 cm					sand		sand w/ large cobble dropstones - probably layered																
		coll.						coll. Till		colluviated till, lg cobbles to boulders common																
		Till	220 cm					till		sandy till - colluviated/ washed slightly; sec'n 127-128 m is deepest part of trench;																
		till	360 cm																							
128	130	till	400					till		sample at 128 m, 400 cm depth; no bedrx												excellent basal till, boulder clay	LNRD-509			
130	134	till						till														curt's float collected at 131 m; BFP text obit'd w/ cp, hem gossan	LNRD-413 (FLOAT)			
134	140	--						ZST	K	mdm gry	4	1-2	-	<2	-	-	-	-	-	-	<1					
140	141	till						till																		
141	145	--						ZST	K	mdm gry	4	1-2	-	<2	-	-	-	-	-	.5	<1		Bx'd locally; clay altered locally	LNRD-396		
145	150	till								spl coll'd above b/r, at 3 m depth; sandy, not great; smpl at 141 m; colluvium or washed till- sandy matrix -																
145	150	till								probably similar to unit at 220-360 cm depth in sec'n w/ till #509; float of zst & BFP w/ py 1-2%; lg angular boulders;																
150	152	O/B						O/B																		
152	154	++						BFP	K-silic	dk gry	7-8	1	N	0	N	1-1.5	-	-	1	-	8					
154	160	O/B						O/B																		
160	170	silt & clay						silt & clay														finely laminated silt and clay w/ diamicton interbeds and colluvium capping the unit	NO SMPL			

TRENCH LNRD (N OF TR-4) OCT 22/00
 Orientation/length: S-N/280 m

Location:
 N. Zone, west of MO-21

Date: October 1999, Logged By: E. O'Brien and J. O'CP. Page 4 of 4

Visual			Descriptive															Assays							
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	veint %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No	Cu %	Au g/t
264	270	++						BFP	phyl & clay	med gry	5	1-2	N	1-2	N	0	0	0	1-1.2	0	<.5		LNRD-401		
270	280	++	85	90	20	80		BFP	K-silic	dk gry	6-7	1-2	N	2-3	N	0	0	0	<.5	0	1-.5	some 2nd bio; py & silic decrease to the north; primary bio increases to the north	LNRD-400		

CHRIS GARRISON

Visual			Descriptive																	Assays			
From m	To m	ROCK	strike dip	strike dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au
328	334	++				BFP	phyl, wk arg	lt gry-buff	5	1-3	n	<5	n	tr.	n	n	1	<1	n	Trench doglegs off of TR-4. Part of this interval was not trenched down to bedrock. Matrix of rock is alt'd to ser, bio's have alt'd to ser. F/s alt'd to clay partially. Few specks of cp, py on fract's. Till at 200 cm depth, collected above b/r @ 333 m.	LNRD 371 LNRD 501		
335	347																			Not trenched - used as an access trail.			
347	395	O/B				COLLUV														Layered sand, colluvium and glaciofluvial sediments.	NO SMPL		
395	403	++ grab				BFP	phyl, wk arg	lt gry	5	2-3	n	<5	n	0	0	0	1	<1		Grab samples of subcrop, colluvium. Large boulders mainly BFP. Some exotics (not sampled). Specks of py. K alt'd BFP has 1% f.d. Cpy (probably float - large SR-SA boulder)	LNRD 372		
403	405	++ grab				BFP	K	dk gry	6	1-2	n	<5	n	1	0	0	0.5	<1			GRAB		
405	431.5	O/B				COLLUV														Sandy colluvium and glaciofluvial sediments showing evidence of channelized flow. NO BEDROCK.	NO SMPL		
431.5	434	++				BFP	K?	orange	5-6	4	n	<5	n	0	n	n	1?	n	3+	Sample is very weathered but with fresh bio xals. Not pervasive, so possibly phyl alt'd locally.	LNRD 373		
432	432	O/B				TILL														Till is collected over large boulder of BFP b/r.	LNRD 503		
432	460	O/B				COLLUV														Thick deposits of colluvium and glaciofluvial. At 460 m, ledge drops down with bedrock exposed at approx. 250 - 300 cm depth.	NO SMPL		
460	465	ZST	220	85		ZST	K?	med - dk gry	4	1-2	n	2-3	v. wk loc.	0	n	low	0	1	0	Grain size is slightly coarser than typically observed.	LNRD 374		
465	470	O/B				TILL														Till with large boulders of BFP	NO SMPL		
470	475	ZST				ZST	K? or unalt'd	med gry	4	1	n	3-5	n	n	n	n	n	3	n	Discontinuous carb veins. ZST is powdery with slicks and sheen. Gouged and fract'd. Locally clay alt'd.	LNRD 375		
475	483	ZST				ZST	K? or unalt'd	med - dk gry	4	1-2	n	1-2	n	n	n	n	n	n	n	ZST has microfracts. Falls apart and is much softer than typically obs.	LNRD 376		
483	485	BFP				BFP	phyl	lt gry	1-3	n	n	1-2	n	5-8	n	n	2-3	n	2-3	Locally weakly weathered, but mainly moderately weathered.	LNRD 376		
485	491	BFP	80	80		BFP	phyl-arg	lt gry - wht	5	1-3	n	2	n	n	n	n	<1	n	o	Weathered quite deeply. <1% py, no cp?	LNRD 377		
491	492.5	GOS				GOSSA N	arg - phyl	wht - lt. Gry	4	3	n	3-4	n	2	n	tr.	4	n	n	Gobs of cpy, some on fractures. Hand samples collected.	LNRD 377		

Visual				Descriptive																	Assays			
From m	To m	ROCK	strike dip	strike dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Blo %	Description	Sample No.	Cu %	Au g/t	
486	492.5	BFP				BFP w/ GOS	as above														Trench was deepened and resampled by D. Addison.	LNRD 383		
492.5	493.5	BFP				BFP	phyl - arg	lt. Gry	5	2-2.5	n	<5	n	n	n	n	1	<1	n		Deepened to about 400 cm. Py on frags in BFP	LNRD 384		
493.5	499	ZST				ZST	K? / clay	med - dk gry	3	1-1.5	n	<5	n	n	n	n	n	1	n		ZST is quite coarse and could be a fine grained SST. It is clay alt'd with carb veins. Visible layering.	LNRD 384		
497	497	O/B				TILL															Excellent till collected right above b/r at about 400 cm depth.	LNRD 506		
498	498	O/B				TILL															175 to 200 cm of A-SR large pebbles and cobbles over good till. Sample collected at 225-250 cm depth	LNRD 504		
498	505	O/B				O/B															Thick overburden.	NO SMPL		
505	515	O/B				O/B																NO SMPL		
515	525	O/B	grabs			O/B															Grab sample collected in this interval from trenched up clasts. Most samples are oxidized, with some mal, cpy in alt'd BFP.	LNRD 378 GRABS		
520		COL	125 cm			COLLUV		40% SA-SR clasts in a coarse sand, oxidized matrix. Downslope fabric.													Quaternary stratigraphic sec'n.			
		S	225 cm			SAND		Laminated sand, dipping down slope at approximately 145/30.													NO SMPL			
	520	D.F	300 cm			DEBRIS FLOW		Flow or washed till. Very sandy with low silt and no clay content. Downslope layering.																
525	540	O/B																			Cross IP line 1525 N, 2125 E at 538 m. No trenching until 539 m.	NO SMPL		
540	555	O/B				O/B		Grab spls are weakly min'd. Inc. boulder of brecciated gossanous BFP.													Boulder is very rusty and likely not far travelled.			
								Matrix of BFP is dk grey (qz and py?). In matrix are angular fragments of cherty ZST.																
555	565	O/B				O/B		At 555 m, thick colluvium/ Fg with SA cobbles and boulders in a sandy matrix.													At 565 coll. (200 cm depth or more) is underlain by very fine, laminated sand and silt.			
565	570	---				ZST	clay, K?	med - dk bl gry	3	2-3.5	n	3-5	n	n	n	n	1-2	tr	n		Probably coarser grained than typical ZST. Some microfractures with py vns/ stringers. Mod. Clay alt'n locally. Mod strong oxid. Loc.	NO SMPL		
570	620	O/B				O/B		200+ cm of SA-SR boulders & pebbles w/ sand over 100 cm of clay/silt													No till.			
621	621	O/B				TILL		0-100 cm is coll. till, 100-200 is loose till with sand lenses. 200-300 is till.													Very good, hard till. Cp content in float decreases			
625	775	O/B				O/B		Similar stratigraphy as above. Sample collected every 10 m.																
625	625	O/B				TILL															Excellent basal till. 270 cm.			

Visual			Descriptive																	Assays					
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veinte 1%	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
635	635	O/B						TILL														Very good, dense till, 250 cm depth.	LNRD 520		
645	645	O/B						TILL														Float with 2% py, <1% cp. Good till at 220 cm.	LNRD 521		
655	655	O/B						TILL														Very dense, good till. 350 cm depth.	LNRD 519		
662	663	GRAB						BFP	K	dk gry	7	1-3	0	0	0	1	0	hi	0	0	<1	Initially thought to be bedrock, but trench was deepened and revealed this to be a large boulder. Abundant mal on weathered surface.	LNRD 381		
666	666	O/B						TILL														Good silty diamicton.	LNRD 518		
666	675	O/B						TILL															NO SMPL		
675	678	+++						BFP	K	dk gry	3-5	.5-1.5	md	<4	m-low	.5-1.5	0	0	5	<1	2	This rock may not be in situ, but good basal till lies above.	LNRD 435		
678	682	O/B						TILL														No bedrock	NO SMPL		
682	683	+++						BFP	K	dk gry, loc. Grm tinge	3-5	.5-1.5	md	<4	m-low	.5-1.5	0	0	5	<1	2	Possibly some pyrrhotite. Too magnetic to measure fractures. Large, blocky frags.	LNRD 435		
683	705	O/B						SAND & GRAVEL														No bedrock. Few lrg cobbles or boulders. 450 cm deep.	NO SMPL		
705	705	O/B						O/B														0-200 cm of well-sorted fine pebbles, slightly snadier top 40 cm. Imbricated downslope.			
								O/B														200 - 220 cm fine silt (lies adjacent to large BFP boulder. 220 300 till.	LNRD 517		
705	707	O/B						O/B														AS above.	NO SMPL		
707	708.5	+++						BFP	K	mdm gry	5	.5	wk	<3	v. wk	.5-.7	0	0	1.5-2	1	1.5-2	Discontinuous bedrock?? Could be large blocks of transported BFP??	LNRD 434		
708.5	712	O/B						SAND & GRAVEL														No bedrock. Poorly consolidated sand and gravel and cave.	NO SMPL		
712	715	+++						BFP	K	mdm gry	5	.5	wk	<3	v. wk	.5-.7	0	0	1.5-2	1	1.5-2	Discontinuous bedrock?? Could be large blocks of transported BFP?? Masses of py> cpy, possibly pyrrhotite.	LNRD 434		
715	725	+ O/B +	30	90				Disc. BFP	K	mdm gry	5	.5	wk	2	wk	0.7-1	0	0	1.5-2	1	1.5-2	Three are probably BFP bedrock, suspect though and may be just large boulders. Competant but discontinuous. Py is in gobs, fine masses.	LNRD 433		
722	730	++						Disc. BFP	K	dk gry	6	<1	m-s	0	0	<1	0	0	3-5	<1	<1	Sampled before the trench was deepened. Likely bedrock. Peppered with f.d. py, some f.d. cpy and blebs.	LNRD 382		

Visual				Descriptive														Assays								
From m	To m	ROCK	strike dip	strike dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t			
722	730	++				Disc. BFP	K	dk gry	6	<1	m-s	0	0	<1	0	0	3-5	<1	<1	Sampled before the trench was deepened. Likely bedrock. Peppered with f.d. py, some f.d. cpy and blebs.	LNRD 382					
725	733	++				BFP	K (phyl)	mdm gry	6	1	wk	2-3	0	1-1.5	0	low	1-1.3	<1	2-3	BFP is well min'd with fine masses to gobs of cp/pyrrh. Fine masses of bio. Cp mainly on frags/vns. Poss. Aspy?	LNRD 432					
733	735	---				ZST	K phyl?	lt - mdm gry	4-5	<1	0	<2	0	0	0	low	0.5	<1	0	ZST as below except 734 m is a fractured/oxidized, brecciated zone with strong Fe Oxid, low mal. 20 cm wide.	LNRD 432					
735	745		350	33		ZST	K phyl?	lt - mdm gry	4-5	<1	0	<2	0	0	0	0	0.5	<1	0	Py in veinlets and rare specks. Good rock exposure. Several quite broken-fractured areas, some with vns with strong Fe oxid.	LNRD 431					
745	747	--	124	88	240	74	ZST	K? clay	dk bl gry	4	<1	0	<2	0	0	0	tr.	1	<1	0	ZST looks cherty but is not hard. Weak clay alt'n. Pu veinlets and cp next to 2 cm oxid. gg	LNRD 430				
747	748	++	45	68	197	80	BFP	K	mdm gry	5-6	1.5	M	<5	0	tr. 0.3	0	0	2	<1	2		LNRD 430				
748	755	---			34	80	Disc. ZST	K-phyl	lt gry to v. lt tan	4	1-1.5	N	3	0	tr.	0	0	.5	<1	0	Discontinuous ZST with till. ZST as above.	LNRD 430				
755	757	O/B					TILL														NO SMPL					
757	757.5	---					BX ZST	K?	med - dk gry	5	2	0	10	0	0	0	0	5	5	0	Masses of py and q veining	LNRD 436				
757.5	758	+++					BFP	phyl	ash grey	5	1	0	2	wk	.2	0	0	.5	0	0	Unusual color.	LNRD 436				
758	765	O/B					TILL													Spl collected at 764 m. Washed till / glaciofluvial overlies silt. Till at the base of the trench at 250 cm.	NO SMPL					
765	772	---					SST w/ ZST	K phyl	lt gry	4	1	n	2-3	0	0	0	0	<1	<1	0	Mainly fine sst with minor zst interbeds locally. Specks of py.	LNRD 429				
772	775	O/B					TILL													Till collected at 775 m	LNRD 516					
775	785	O/B grabs					FLOAT		Grab spls from the base of the pit in basal till.													BFP is K with coarse py/cpy stringers. SST is K-phyl, unmin. ZST is unmin'd	LNRD 428 GRABS			
785	785	O/B					TILL		Collected at 425 cm depth. Deep overburden.															LNRD 515		
785	793	O/B grabs					FLOAT		Grabs collected from boulders, possibly caved in from the top of the trench.															LNRD 427 GRABS		
793	795	---					ZST	K?, clay	lt gry	4	1	0	2	0	0	0	0	0	1	0						

Orientation/length: N-S-338-920 m

N. Zone, west of MO-21

Visual			Descriptive																Assays						
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	Veinlets %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Blo %	Description	Sample No	Cu %	Au g/t
795	797	+++						BFP	phyl - clay	lt gry	4	1	0	0	3	<.5	0	0	.5	1	0	High grade float of BFP with thick vns filled with cp and born collected in float (in till).	LNRD 426		
797	805	O/B						TILL														Good basal till at 410 cm depth.	LNRD 514		
805	815	O/B						GRABS														Grab samples of large rocks (cobbles) collected at the base of the pit. Phyl alt'd BFP, moderately weathered <1% 0.3% Cpy.	LNRD 425		
		ADJOINS END OF TR 8																							
815	825	+++	350	90				BFP	K- phyl	lt - mdm gry	5	1.5-2	M-S	3	N-M	.3-1	0	0	2-2.5	1	2-3	Deep overburden over bedrock. F.d. py, minor cpy. Locally chl. Alt'n. Better mineralized when with chl/cb/q/ py vns.	LNRD 424		
824	824	O/B						TILL														Good till at 320 cm depth collected above bedrock. B/r is weakly min'd BFP	LNRD 524		
825	832	O/B																					NO SMPL		
832	835	+++						BFP	phyl and clay	lt - mdm gry	4-6	1-3	n	4-6	0	.8-1	0	0	.8-1	1	0		LNRD 423		
835	845	+++ +BX +++ +	183	56				BFP	phyl and clay	lt - mdm gry	4-6	1-3	n	4-6	0	.8-1	0	0	.8-1	1	0	0.3 to 0.5% AsPy. This interval includes a highly oxidized BFP bx'd zone with Py/AsPy/Cpy vns. Mo? Occurs locally? With Cp. Aspy also on fractures.	LNRD 422		
845	855	-- ++ ++						BFP w/ ZST zeno	phyl - clay	lt gry	5	1	0	3-4	n-w	.5	0	0	.5	1.5	0	ZST zenoliths. Contact with sed is covered. Very competent, irregular fractures	LNRD 421		
855	865	-- BX	199	80				BX'D SEDS	phyl - clay	lt med gry	5-6	1-3	0	4-10	0	0-0.8	0	0	.5	tr	0	Heavily fractured, sheared zone with gouges and brecciation. Heavily oxidized. Cp near 855-857 m.	LNRD 420		
865	867	-- BX	298	70	296	58		BX'D SEDS	phyl - clay	lt bl gry	5	2	0	5-8	0	0	0	0	tr	tr	0	ZST, SST	LNRD 419		
867	875	+++	209	74	43	40		BFP	phyl - clay	lt gry	4-5	1-2	0	3-4	n-w	0.8-1	0	0	1	tr	0	Grey, soft mineral associated w/ Cp (moly? Covellite? Graphite?). Cp is c.d. and some along fractures.	LNRD 419		
875	885	+++	139	68				BFP	phyl - clay	lt gry	4-5	1-2	0	3	n-w	0.8	0	0	.8-1	2	0	Cp is c.d. and along rare fract	LNRD 418		
885	891	+++	89	78	120	90		BFP	phyl - clay	lt gry	5	1-2	0	2-3	0	0.5-1	0	tr.	.5	tr	0	Cp is c.d. and along fract/vnltes. F/s alt'd to clay	LNRD 417		
891	895	---	99	58	162	84		BX'D ZST	phyl - clay	lt bl or gry	3-4	2-3	0	3	0	0	0	0	tr	tr	0	Heavily fractured, ZST, includes wacke.	LNRD 417		

Visual		Descriptive																	Assays						
From m	To m	ROCK	strike	dip	strike	dip	VEINS	Lithol	Alt'n	Color	Hard	Weath	Mag	veinlet %	Cl	Cp %	Bn %	Mal	Py %	Ca/Cb %	Bio %	Description	Sample No.	Cu %	Au g/t
895	899	---						ZST	wk K, clay	lt gry	4	1-1.5	0	1	0	0	0	0	0	tr	0		LNRD 416		
899	905	+++						BFP	phyl, arg, wk	lt gry	3	2	0	0	0	0	0	0	2-3	<1	0	Bleached light gry	LNRD 416		
905	915	+++	73	64	325	88		BFP	phyl-arg	lt gry	5-6	2	0	<3	0	tr	0	0	3	<1	0	Very crowded texture of f/s alt'd to kaol. Locally gouged with heavy oxid and py stringers.	LNRD 416		
915	920	+++						BFP	phyl-arg	lt gry	5	1-2	0	<3	0	tr	0	0	3	0	0	END OF TRENCH!! Joins on to main access road. Minor py on vns and fractures.	LNRD 414		



SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au** gm/mt	Sample lb
S Sect	LNRD-431	1 153	9 81	.3 44	23 208	2.18 223	<8 <2	2 21	<.2 <3	<3 <3	27 .22	.048 17	23 .66	208 .01	5 1.35	.04 .43	<2 .01	7														
	LNRD-432	2 593	35 136	.8 60	24 390	4.51 206	<8 <2	2 23	.4 <3	<3 86	.40 .109	10 78	1.59 173	.07 3	1.94 .03	.54 <2	.01 6															
	LNRD-433	2 963	12 199	1.5 59	22 270	5.09 148	<8 <2	3 26	.6 <3	<3 117	.55 .142	17 76	1.91 83	.11 3	2.05 .06	.73 2	.03 5															
	LNRD-434	30 571	8 119	1.0 33	42 301	4.05 648	<8 <2	3 25	<.2 <3	<3 115	.40 .130	11 74	1.97 318	.13 <3	2.01 .05	.74 <2	.04 3															
	LNRD-435	3 904	18 98	.9 60	73 303	4.29 821	<8 <2	3 39	<.2 <3	<3 107	.95 .140	11 90	1.75 199	.12 <3	1.69 .06	.72 2	.03 6															
LNRD-436	4 455	13 124	.7 81	39 279	5.31 585	<8 <2	2 48	.2 <3	<3 65	.75 .196	15 53	.71 142	.02 3	.81 .03	.26 <2	<.01 3																
RE LNRD-436	4 486	12 125	.7 82	41 288	5.47 602	<8 <2	2 50	.3 <3	<3 65	.78 .200	17 54	.73 153	.02 4	.84 .03	.27 <2	.05 -																

Sample type: ROCK R150 60C. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

APPENDIX C

C) Petrographic Reports: Vancouver Petrographics



Vancouver Petrographics Ltd.

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PETROGRAPHIC REPORT ON 10 POLISHED THIN SECTIONS FROM MORRISON PROPERTY, BABINE DISTRICT, B.C.

Report for: J. Paul Stevenson
 10th Floor, Princess Building
 609 West Hastingst Street
 Vancouver, B.C. V6B 4W4.

Invoice 000380

Aug. 15, 2000.

SUMMARY:

All but one of the samples in this suite may be characterized as variably altered porphyritic high-level intrusive rocks, likely mainly a crowded biotite-hornblende quartz diorite (tonalite) porphyry prior to alteration. Typically the rock originally consisted of about 30-50% 1-4 mm plagioclase and 10-15% 1-2 mm mafic (biotite, hornblende) phenocrysts in a fine-grained (0.1-0.2 mm) groundmass of quartz and alkali feldspar plus minor mafic minerals. The last sample, MO-9-12.4, is a fine-grained mixture of quartz, ?albitic alkali feldspar, carbonate, biotite, chlorite, K-feldspar and sulfides and oxides with a equigranular texture that likely represents a hornfelsed sediment or volcanic rock.

Alteration in the intrusive rocks may be roughly divided into early potassic (quartz-biotite-amphibole-Kspar-magnetite-chalcopyrite \pm apatite, epidote, chlorite) typical of the Babine porphyry setting (all the dark grey, hard samples including MO-4-111.6, 356, 446; MO-5-214; MO-7-164.7). Carbonate and minor sericite and ?clay in these samples may be the result of overprinting by later phyllic/argillic alteration, which is well illustrated in the rest of the samples. Phyllic alteration (quartz-carbonate-?clay-?chlorite-rutile) in MO-4-87.6 and 88.4 shows remnants of earlier ?secondary biotite. Similarly, argillic or advanced argillic (?clay-quartz-carbonate-sericite) alteration in MO-4-154.3 and MO-5-210 contains trace ?relict secondary biotite and secondary K-feldspar.

Veins and veinlets, mainly of quartz but also including amphibole, biotite, carbonate and sulfides plus rare magnetite/hematite, are common in this suite of rocks. Alteration envelopes include secondary biotite and K-feldspar in the potassic altered samples. Sulfides are also distributed along microfractures, or are disseminated.

The rocks in this suite of samples were submitted with a question as to "Cu not visible-but getting values". The petrographic study, detailed below, clearly demonstrates the presence of abundant copper sulfides in all samples (mainly chalcopyrite; bornite is also present in minor quantities in two samples, MO-4-111.6 and MO-5-214). The distribution, character and size range of the copper sulfide blebs are illustrated in the photomicrographs appended to this report.

Oxide minerals associated with these sulfides are mainly magnetite (in places partly to completely oxidized to hematite) and rare ilmenite, rutile and sphene.

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MO-4-87.6: INTENSELY PHYLIC (QUARTZ-CARBONATE-?CLAY, ?CLAY/CHLORITE ± RELICT SECONDARY BIOTITE, CHALCOPYRITE ± PYRITE) ALTERED INTRUSIVE

Pale grey-green, strongly phyllic (quartz-carbonate-clay/sericite-pyrite) altered, quartz vein stockworked, high-level felsic intrusive rock. The rock is not magnetic and shows no stain for K-feldspar in the etched slab, but reacts strongly to cold dilute HCl, and is softer than steel. Modal mineralogy in polished thin section is approximately:

Quartz (partly secondary)	35%
Carbonate (mostly calcite)	30%
?Clay (?kaolinite)	20%
?Clay/Chlorite	5%
Relict secondary biotite	5%
Chalcopyrite	3-5%
Pyrite	1%
Rutile	1%
Apatite	<1%

This is a very strongly hydrothermally altered rock; the original porphyritic texture is best visible in the etched slab, in which white ?clay altered relict plagioclase crystals with rounded to subhedral outlines up to 4 mm long are visible. In thin section, these relics are composed of mainly tiny ?clay crystals of about 5-10 microns diameter, or void space (where ?clay has been plucked out during section preparation) and subhedral carbonate of about 0.1 mm diameter or less. Other, less abundant, relict crystal sites with coarser ?clay/chlorite (subhedral flakes up to 0.1 mm in diameter, mainly length-slow) could represent former mafic crystals with rounded outlines up to about 1.5 mm in diameter.

In places the relict mafics also contain minor pale brown (relict, altered) secondary biotite as subhedral flakes mostly <0.1 mm in diameter, commonly mixed with sulfides (see below) and traces of rutile (minute euhedra mostly <20 microns in diameter) and apatite (subhedra up to 0.1 mm in diameter).

The former groundmass consists of granular, subhedral quartz, carbonate and clay or clay/chlorite mostly <0.1 mm in diameter.

Sulfides are mainly chalcopyrite, and are mainly distributed along quartz, carbonate or quartz-carbonate veinlets, stringers and disseminated or along microfractures. The blebs of chalcopyrite are mostly anhedral to subhedral, <0.15 mm in diameter. Only in the major quartz veins (up to 8 mm thick) is there any significant pyrite, forming euhedral crystals up to 0.5 mm across that aggregate to 1.5 mm. Thus there is significant copper present in this sample (in the +1% range).



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MO-4-88.4: INTENSELY PHYLLIC (QUARTZ-?CLAY-CARBONATE-SULFIDE-RUTILE-APATITE ±RELICT BIOTITE) ALTERED PORPHYRITIC FELSIC INTRUSIVE ROCK

Pale buff-grey coloured, medium-grained, porphyritic high-level intrusive rock characterized by about 30-35% white 1-3 mm plagioclase relics in a matrix of orangey ?ankeritic carbonate and fine sulfides. Sulfides are mostly fracture-controlled, and appear to be mostly chalcopyrite. The rock is partly harder than steel, not magnetic and shows no reaction to cold dilute HCl, and no stain for K-feldspar in the etched slab. Modal mineralogy in polished thin section is approximately:

?Clay (?kaolinite)	35%
Quartz (partly secondary)	30%
Carbonate (?mainly ankerite)	25%
Relict biotite (partly secondary)	5%
Chalcopyrite	2-3%
Rutile	1-2%
Apatite	<1%

This is also a strongly altered rock, composed of ?clay-altered relict plagioclase sites in a matrix of quartz, carbonate, sulfide and relict secondary biotite. Former mafic sites are not easy to distinguish. Alteration varies in intensity with the most altered rock found along narrow carbonate veins and veinlets that are mostly less than 1 mm thick.

Relict plagioclase sites have euhedral to subhedral outlines up to 3 mm long that are almost entirely pseudomorphed by extremely fine flakes of ?clay mostly <5 or 10 microns in diameter (low birefringence, low relief suggests ?kaolinite) plus lesser carbonate (subhedra mostly <50 microns in diameter).

The groundmass is composed of 0.1-0.15 mm subhedral quartz crystals (probably mostly primary) set in a matrix of ?clay-altered feldspar relics, carbonate, secondary quartz, and sulfides. The former feldspar crystals have subhedral outlines up to 0.2 mm in diameter, and may have included both plagioclase and K-feldspar. Secondary quartz is distinguished by its radiating "brush" or chalcedonic texture, with rosettes up to about 0.15 mm in diameter. Carbonate, likely mostly ankerite (ferroan dolomite) to judge by the colour and lack of reaction in hand specimen, forms subhedra up to about 0.1 mm in diameter.

Possible former mafic relic sites up to 2 mm in size are marked by the presence of minor dark brown biotite (anhedral flakes up to 0.2 mm diameter, mixed with the carbonate), sulfides, abundant rutile and common apatite (subhedral to euhedral crystals up to 0.4 mm long). Part of the biotite and possibly some of the apatite may be secondary in origin.

Chalcopyrite is mainly found distributed as fine anhedral to subhedral blebs (mostly <0.2 mm, rarely to 0.35 mm diameter) along fractures and their immediate envelopes. However, the outer boundaries of these envelopes is generally diffuse, and there is a transition to finely disseminated (mainly <75 micron diameter) blebs in the surrounding rock. Most of the chalcopyrite in the veins and envelopes is hosted in carbonate; most of the disseminated chalcopyrite is hosted by quartz, or found in relict mafic sites where it is associated with fine-grained (25 micron) rutile. Note that pyrite is not seen in the section, implying a relatively high Cu:Fe ratio in the mineralizing fluids for this sample.



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MO-4-111.6: POTASSIC (QUARTZ-BIOTITE-CARBONATE-CHALCOPYRITE-MAGNETITE) ALTERED, PLAGIOCLASE-HORNBLende/BIOTITE PHYRIC QUARTZ DIORITE INTRUSIVE

Dark grey (mafic-rich), medium- to fine-grained altered porphyry cut by quartz veins and chalcopyrite-bearing fractures that in places show dark envelopes. The alteration in this sample is likely secondary biotite (potassic), that has not been overprinted by later phyllic (quartz-carbonate-?clay) alteration as in the previous two samples from this hole. The rock is mostly harder than steel, weakly magnetic and shows minor reaction to cold dilute HCl, but there is only trace yellow stain for K-feldspar in the etched slab. Modal mineralogy in polished thin section is approximately:

Plagioclase (andesine)	40%
Quartz (partly secondary)	35%
Biotite (partly secondary)	15%
Carbonate (mainly calcite)	5%
Chalcopyrite, minor bornite	2-3%
Magnetite, hematite	1-2%
K-feldspar	1-2%
Apatite, epidote	<1% each

The original porphyritic texture of the intrusive rock is well preserved in this sample, which consists of about 40% plagioclase and 15% relict mafic crystals in a fine-grained groundmass of quartz, plagioclase and minor K-feldspar.

Plagioclase crystals have euhedral outlines up to 3.5 mm long and retain original compositional zoning, from cores (about 90% of the crystal) of andesine, near An_{45} , based on extinction angle γ^{010} near 25 degrees and relief close to that of quartz. Narrow rims (10% of the crystal) are of oligoclase (smaller extinction angle). Minor (<5%) alteration is mainly to fine grains of carbonate, likely mostly calcite, less than 20 microns in diameter.

Mafic crystals have subhedral outlines up to 2.5 mm long that are suggestive of former hornblende, now replaced by fine secondary biotite (subhedral flakes mostly <0.2 mm in diameter) and variable amounts of carbonate (subhedra mostly <50 microns in size). In some cases the crystals are larger single crystals of biotite, mostly <1 mm in diameter, that likely represent primary biotite crystals. Minor amounts of magnetite (subhedral to euhedral crystals up to 0.25 mm in diameter) and apatite (subhedral crystals up to 0.2 mm long) are closely associated with the altered mafic sites, as are minor amounts of chalcopyrite (subhedral crystals mostly <0.1 mm in diameter).

The groundmass consists of roughly equal proportions of plagioclase and quartz, both forming subhedral to anhedral crystals about 0.1-0.2 mm in diameter, lesser biotite and K-feldspar of similar size, plus minor magnetite and rare chalcopyrite (both as subhedral crystals mostly <0.1 mm in diameter).

Veins and veinlets, in places up to 0.5 cm thick, consist mainly of quartz (subhedral to anhedral crystals less than 0.5 mm in diameter), with minor amounts of chalcopyrite (anhedral blebs up to 1 mm across, generally closely associated with biotite as euhedral flakes to 0.2 mm diameter) and rare bornite (subhedra to 0.2 mm in diameter). In places the veins contain some carbonate, or are mostly composed of carbonate (subhedral to euhedral crystals up to 0.3 mm in diameter). Although magnetite is not found in the quartz veins, it is present along narrow hairline fractures (with chalcopyrite), suggesting that some of the magnetite is secondary and confirming the mainly potassic nature of the alteration (quartz-biotite-chalcopyrite-magnetite).



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MO-4-154.3: INTENSE ARGILLIC/ADVANCED ARGILLIC (?CLAY-QUARTZ-CARBONATE-SERICITE-CHALCOPYRITE+PYRITE) ALTERED PORPHYRITIC INTRUSIVE ROCK

Chalky white to buff-cream coloured, fine-grained, intensely ?clay altered intrusive rock (much softer than steel, sticks to tongue when wetted). Vague porphyritic texture preserved; stockwork of grey quartz veins; minor sulfides, mostly chalcopyrite, throughout (disseminated, on microfractures, and in quartz veins). The rock is not magnetic and shows little reaction to cold dilute HCl, but there is minor yellow stain for K-feldspar in the etched slab, especially along the envelope of a major quartz vein.

?Clay (largely after feldspars)	55%
Quartz (partly secondary)	25%
Carbonate (?ankerite, minor calcite)	10%
Sericite	5%
Chalcopyrite, rare pyrite	1-2%
Iron oxides, ?rutile	1%
K-feldspar (secondary)	1%
Relict secondary biotite	1%

Only traces of the original texture of this porphyritic intrusive rock remain, after intense argillic/advanced argillic (clay-sericite-quartz-carbonate-sulfide); and relict potassic (K-feldspar-biotite) alteration.

Former plagioclase crystals have rounded to irregular or vague outlines up to 2.5 mm long. The former crystals are pseudomorphed by very fine-grained (<20 micron diameter) ?clay, with lesser amounts of carbonate (subhedra to 40 microns) and minor sericite (subhedral flakes to 35 microns in diameter). Commonly, the centers of the pseudomorphed crystals have been plucked out during section preparation, leaving voids. Former ?mafic relict sites are likely marked by concentrations of sulfides, carbonate and wisps of brown ?secondary biotite plus traces of rutile as minute crystals <20 microns in size.

The groundmass is distinguished by small anhedral to subhedral crystals of quartz, mostly <0.1 mm in diameter, separated by areas of ?clay, carbonate, and sericite plus iron oxides or rutile. The ?clay and carbonate likely represent the former sites of feldspar and mafic crystals respectively. The oxides are extremely fine-grained (microns in diameter) and not identifiable precisely, but may include limonite and rutile. Traces of K-feldspar, probably secondary, occur as fine subhedra (<0.1 mm in diameter) along the margin of a major quartz vein. There may thus have been potassic alteration present prior to the intense argillic/advanced argillic now evident.

Virtually all the sulfide in this sample is chalcopyrite, forming small blebs mostly <0.5 mm in diameter (coarser in the quartz veins, finer as disseminations). Only rare pyrite occurs (minute subhedra to 50 microns in diameter, mainly found enclosed within chalcopyrite, in the quartz veins).



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MO-4-356: POTASSIC (QUARTZ-BIOTITE-AMPHIBOLE-KSPAR-MAGNETITE-SULFIDE-GYPSUM/ANHYDRITE-CARBONATE) ALTERED PORPHYRITIC INTRUSIVE ROCK

This sample is a dark grey, fine to medium-grained, strongly altered porphyritic intrusive rock similar to that from 111.6m in this hole (probably biotitic, i.e. potassically altered; some destruction of texture). The etched slab reveals the crowded porphyritic texture, with about 40-45% white plagioclase crystal relics, and yellow stain for (secondary) K-feldspar along narrow (commonly chalcopyrite-bearing) fractures. The rock is magnetic but shows no reaction to cold dilute HCl, and is mainly harder than steel. Modal mineralogy is roughly:

Plagioclase (oligoclase-andesine)	50%
Quartz (partly secondary)	20%
Biotite (partly secondary)	10%
Amphibole (mostly secondary)	10%
K-feldspar (mainly secondary)	1-2%
Magnetite, hematite (minor ilmenite)	1-2%
Chalcopyrite, trace pyrite	1-2%
Clay-sericite	1-2%
Carbonate	1-2%
Gypsum/anhydrite	1-2%
Apatite	<1%

This potassic altered sample consists of closely spaced (crowded) plagioclase phenocrysts set in a groundmass of quartz, feldspar and biotitized or amphibolitized mafic relics. The rock is cut by a network of quartz+sulfide/magnetite veins and fractures, some of which are accompanied by secondary biotite, K-feldspar and gypsum/anhydrite. Plagioclase phenocrysts have mainly euhedral outlines up to 4.5 mm long. They show oscillatory compositional zoning that ranges little about an average near the oligoclase-andesine boundary (about An_{30} , based on extinction X^{001} and X^{010} near zero degrees), except for very narrow rims that are more sodic (oligoclase-albite). Alteration of the plagioclase is minor, to traces of sericite or less commonly alkali feldspar (?partly K-feldspar) along microfractures.

In the matrix, quartz forms subhedral to anhedral crystals mainly <0.25 mm in diameter that are mainly primary, but in places show overgrowths due to addition of secondary quartz, or grade into coarser crystals (up to almost 1 mm in diameter) that form poorly to in places well defined quartz veins and veinlets. Matrix feldspar forming subhedral crystals mostly <0.2 mm in diameter appears to be mostly plagioclase, but in places it grades to an alkali feldspar, likely mostly secondary, that includes some K-feldspar. Mafic minerals have vaguely defined, relatively anhedral outlines up to 1.5 mm in diameter and have been entirely replaced by amphibole, biotite, magnetite, sulfide and apatite. Amphibole forms pale green fibrous crystals up to 0.5 mm long, with extinction angle near 18 degrees; it is likely actinolitic hornblende and is typical of potassic alteration. The biotite forms fine medium brown subhedral flakes up to about 0.15 mm in diameter, and is typical of potassic alteration.

Quartz veins up to 3 mm thick containing minor chalcopyrite and pyrite (blebs up to 0.15 mm diameter) have amphibole-rich envelopes, and are cut by biotite-chalcopyrite-magnetite/hematite/ilmenite-Kspar-gypsum/anhydrite veinlets <1 mm thick. Chalcopyrite forms blebs up to several mm long; magnetite, largely oxidized to hematite, forms subhedra up to 0.3 mm. Gypsum crystals (possibly after anhydrite) are elongate (up to 1 mm), and commonly dissolved out (?during sectioning). Carbonate forms subhedra up to 0.1 mm in size along later fractures.



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MO-4-446: POTASSIC (QUARTZ-AMPHIBOLE-BIOTITE-KSPAR-CARBONATE-SERICITE-EPIDOTE-CHALCOPYRITE-MAGNETITE/HEMATITE/ILMENITE/SPHENE-CHLORITE) ALTERED PORPHYRITIC INTRUSIVE ROCK

Dark grey, fine to medium grained, potassic altered porphyritic intrusive rock cut by a network of quartz-chalcopyrite veinlets and microfractures, along some of which significant (secondary) K-feldspar is developed as indicated by yellow stain in the etched slab. The rock is weakly magnetic and shows minor reaction to cold dilute HCl; it is mainly harder than steel. Modal mineralogy is approximately:

Plagioclase (andesine)	45%
Quartz (partly secondary)	20%
Amphibole (largely secondary)	10%
Biotite (primary and secondary)	5%
K-feldspar (?mainly secondary)	5%
Carbonate (?mainly calcite)	5%
Sericite	2-3%
Epidote, minor allanite	1-2%
Chalcopyrite (trace pyrite)	1%
Ilmenite, sphene	1%
Hematite (?mostly after magnetite)	1%
Chlorite	1%
Apatite	<1%

Plagioclase forms mainly euhedral crystals up to 3 mm in diameter with weakly defined oscillatory zoning closely confined to a composition near An_{35} (andesine). Most crystals show only minor alteration to fine flecks or fractures of fine-grained (20 micron) clay-sericite; however, replacement of plagioclase by K-feldspar is evident in thin section as irregular areas accompanied by fine flakes of clay-sericite that spread along fractures outwards from borders of major quartz-amphibole veins.

Mafic crystals include euhedral brown biotite up to 1.5 mm in diameter (probably primary) and subhedral to euhedral ?hornblende relics that are replaced by fibrous pale green amphibole (likely secondary actinolitic hornblende as subhedra to 0.25 mm long) and secondary biotite as bright brown subhedral flakes mostly <0.1 mm in diameter. Minor apatite (subhedra to 0.3 mm), sulfides and oxides accompany this alteration; in places there is also minor epidote (euhedral crystals to 0.3 mm diameter) that are variably cored by reddish-brown euhedral crystals of ?allanite (REE-bearing epidote).

The matrix is composed of fine-grained quartz (subhedra rarely over 0.1 mm in diameter, probably mostly primary), alkali feldspar (plagioclase, and in places secondary K-feldspar as subhedra mostly <0.15 mm in diameter and mostly partly sericitized), amphibole (fibrous subhedra to 0.1 mm), carbonate (irregular subhedra to 0.25 mm)

Veinlets consist of quartz (subhedra to 0.3 mm diameter), K-feldspar (subhedra to 0.3 mm), carbonate (calcite and ?ankerite, subhedra to 0.5 mm), amphibole (fibrous subhedra to 0.5 mm), epidote/allanite (as described above), minor chlorite (subhedral flakes to 0.1 mm) and sulfides/oxides (see below). Chalcopyrite forms irregular blebs and anhedral crystals up to about 0.25 mm in diameter, commonly loosely controlled along narrow fractures and veinlets of variable composition. Pyrite is rare in this assemblage, forming anhedral to irregular crystals up to 0.2 mm in size. Oxide mineral grains, mostly <0.25 mm in diameter, associated with the sulfides include ilmenite (commonly surrounded by sphene) and hematite (probably mostly after magnetite, traces of which remain).



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MO-5-210: INTENSELY ARGILLIC/ADVANCED ARGILLIC (?CLAY-QUARTZ-CARBONATE-SERICITE-SULFIDES), RELICT POTASSIC (BIOTITE-KSPAR) ALTERED PORPHYRY

Chalky white to greyish, intensely argillic/phyllitic altered porphyritic intrusive, cut by a fine network of narrow sulfide-bearing fractures that in places broaden into irregular larger blebs, and are associated with orangey-brown, likely ankeritic, carbonate. Minor secondary Kspar is also indicated along some of these fractures by yellow stain in the etched slab. The rock is easily scratched by steel, sticks slightly to the tongue, is not magnetic and shows modest slow reaction to cold dilute HCl. Modal mineralogy in polished thin section is approximately:

?Clay (?kaolinite)	45%
Quartz (partly secondary)	25%
Carbonate (calcite, ?ankerite)	10%
Sericite	5%
Relict secondary biotite/amphibole	5%
Chalcopyrite	2-3%
Pyrite	2-3%
K-feldspar (secondary)	2-3%
Limonite	1-2%
Chalcopyrite	<1%
Apatite	<1%

This sample is intensely argillic or advanced argillic altered (?clay, quartz, carbonate, sericite, pyrite), but retains much of its original porphyritic intrusive texture.

Former plagioclase phenocrysts have euhedral to subhedral outlines up to 2.5 mm in diameter, and are now completely pseudomorphed by very fine-grained ?clay and minor amounts of fracture-controlled sericite and carbonate, plus scattered crystals of pyrite and/or limonite. The ?clay mineral forms minute flakes mostly <10 microns in diameter, with low birefringence and low relief suggestive of ?kaolinite. Sericite flakes are up to 20 microns in diameter; carbonate crystals are anhedral and tend to be less than 20 microns in diameter. Traces of former secondary Kspar, replacing plagioclase, are seen near larger quartz veins as cloudy areas; adjacent plagioclase has been replaced by sericite flakes up to 50 microns in diameter.

Relict mafic sites are marked by concentrations of flakey, pale brown ?relict biotite/amphibole, now largely converted to brownish carbonate, and mixed with secondary quartz, sericite and ?clay. The flakes of ?former biotite are subhedral and up to 0.3 mm in diameter; quartz crystals intergrown with the relics are subhedral, up to 0.15 mm in diameter. Carbonate crystals are mostly <0.1 mm and subhedral to anhedral, with variation in colour and relief suggesting both calcite and ?ankerite may be present. Sericite forms flakes up to 35 microns in diameter; ?clay is mostly <10 microns in diameter.

The groundmass consists of small (mainly <0.1 mm, primary, but in places up to 0.25 mm, partly secondary) subhedral to anhedral crystals of quartz, in a matrix of very fine-grained ?clay, sericite, carbonate sulfides and limonite. Veinlets are mostly <1 m thick, and consist of quartz (subhedra to 0.25 mm diameter), sulfides, ?relict biotite (subhedral brownish flakes up to 0.15 mm in diameter) and minor carbonate and limonite. Sulfides are an intimate intergrowth of fine-grained chalcopyrite and pyrite, both forming mainly subhedral crystals of <0.2 mm in diameter. The very fine-grained (amorphous) limonite may be derived by hydrothermal oxidation of former magnetite/hematite.



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MO-5-214: POTASSIC (QUARTZ-AMPHIBOLE-BIOTITE-CARBONATE-KSPAR-SERICITE-CHALCOPYRITE-BORNITE-MAGNETITE-APATITE) ALTERED PORPHYRITIC INTRUSIVE

Dark grey, strongly potassic (amphibole-biotite) altered porphyritic intrusive rock, cut by abundant narrow veinlets and fractures coated with chalcopyrite. In places, a few of the narrow fractures contain or are associated with secondary K-feldspar as indicated by yellow stain in the etched slab. The rock is mainly harder than steel, magnetic and shows minor reaction to cold dilute HCl. Modal mineralogy in polished thin section is approximately:

Plagioclase (andesine)	45%
Quartz (partly secondary)	25%
Amphibole (secondary)	10%
Biotite (secondary)	5%
Carbonate (mainly calcite)	5%
Chalcopyrite	2-3%
K-feldspar (secondary)	1-2%
Chlorite (after biotite)	1-2%
Sericite	1%
Bornite	<1%
Magnetite, hematite	<1%
Sphene	<1%
Apatite	<1%

This sample consists of about 35-40% 1-3 mm plagioclase phenocrysts and 10-15% vaguely defined mafic relics in a matrix of quartz and feldspar plus minor mafics and sulfides. Alteration is potassic (quartz-biotite-amphibole-carbonate-Kspar-copper sulfides-magnetite).

Plagioclase phenocrysts have euhedral to subhedral outlines up to 3 mm in diameter and retain primary oscillatory compositional zoning which appears to vary little about a median of An₃₅ (andesine) except at the narrow rims. There is mainly only minor alteration to minute flecks of sericite (<20 microns in diameter), except along narrow fractures or microveinlets of quartz and amphibole or biotite plus sulfides, where plagioclase is replaced by subhedral K-feldspar crystals mainly <0.2 mm in diameter.

Mafic relics have vague and poorly defined outlines up to about 1.5 mm long, suggestive of former hornblende crystals that are now pseudomorphed by fine-grained, fibrous amphibole crystals mostly <0.25 mm long and lesser secondary biotite as medium brown subhedral flakes mostly <0.15 mm in diameter, plus sulfides and oxides, apatite and sphene. The sulfides consist almost entirely of chalcopyrite and lesser bornite (subhedra up to 0.25 mm in diameter), mixed in places with minor oxides (magnetite, partly oxidized to hematite) and sphene mostly <0.15 mm in diameter. Pyrite is extremely rare, indicating a high Cu, low Fe, low total S system. Apatite forms subhedral crystals up to 0.15 mm long; sphene forms subhedra mostly <50 microns in diameter.

The groundmass is strongly silicic (likely partly silicified), composed of roughly equal parts of feldspar (mainly plagioclase; minor K-feldspar) and quartz (subhedral crystals mostly <0.1 mm, but ranging up to 0.5 mm where silicification is intense or grades into quartz veins), plus minor amphibole, biotite, and sulfides. Veinlets are either quartz (subhedra to 0.7 mm diameter) with minor sulfides, or amphibole (fibrous crystals to 0.2 mm long), in places mixed with minor biotite (flakes to 0.15 mm), carbonate (mainly calcite, subhedra to 0.25 mm), sulfides and sphene.



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MO-7-164.7: POTASSIC (QUARTZ-BIOTITE-CARBONATE-KSPAR-CHLORITE-CHALCOPYRITE-PYRITE-MAGNETITE/HEMATITE ALTERED PORPHYRITIC TONALITE

Grey, fine to medium-grained, biotite-amphibole (potassic) altered porphyritic intrusive rock cut by planar 1-2 mm thick quartz veins and more irregular microfractures, both with sulfides (chalcopyrite and pyrite). The rock is harder than steel and magnetic but shows only trace reaction to cold dilute HCl, and only minor yellow stain for K-feldspar in the etched slab. Modal mineralogy in polished thin section is approximately:

Plagioclase (oligoclase-andesine)	60%
Quartz (partly secondary)	15%
Biotite (primary and secondary)	10%
Carbonate (calcite and ?ankerite)	7-10%
Chalcopyrite	1-2%
K-feldspar (secondary)	1-2%
Chlorite (after biotite)	1-2%
Magnetite, hematite, minor ?ilmenite	1-2%
Pyrite	<1%
Apatite	<1%

In thin section, this sample consists of about 30-35% 1-3 mm plagioclase, 10-15% altered ?hornblende relics, and <5% brown biotite in a matrix of plagioclase and lesser quartz. The composition is about that of a tonalite (biotite-hornblende quartz diorite); alteration is potassic (quartz-amphibole-biotite-Kspar-sulfides-magnetite).

Plagioclase phenocrysts have mainly euhedral outlines and show oscillatory zoning with a narrow compositional range near oligoclase-andesine (An_{25-35}) based on extinction angle X^{001} that varies from -5 to 7 degrees. The crystals show only minimal alteration, mostly to fine fracture-controlled carbonate, except near major quartz veins, where there is also minor fracture-controlled secondary alkali feldspar (in part K-feldspar, as indicated by the stained slab).

Mafic crystals are either biotite books up to 1.2 mm in diameter (likely mainly primary, although margins are corroded) or relics that have subhedral outlines up to 2.2 mm long suggestive of former hornblende. These are replaced by carbonate (minute crystals mostly <20 microns in diameter, likely ankerite), or carbonate and secondary biotite (pale brown flakes up to 0.2 mm in diameter, in places partly chloritized) plus remnants of fibrous amphibole, sulfides, oxides and apatite. In places the biotite is completely replaced by pale green chlorite as subhedral flakes of 0.1-0.15 mm diameter. Apatite crystals are subhedral, up to 0.15 mm in size.

The groundmass consists of fine plagioclase microlites mostly <75 microns long, anhedral to subhedral quartz generally <50 microns in diameter but rarely up to 0.2 mm in size (?microphenocrysts), biotite to 0.15 mm and magnetite and sulfides mostly <30 microns in diameter. Veinlets are composed either of anhedral quartz up to 0.25 mm in diameter with selvages/core areas of scattered sulfides/oxides (euhedral pyrite to 0.7 mm, chalcopyrite to 0.3 mm, magnetite/hematite to 0.25 mm), chlorite, and carbonate subhedra up to 0.1 mm in size. Traces of ilmenite may be mixed with magnetite. Later fractures are filled by carbonate as minute subhedra <50 microns in diameter, apatite subhedra to 75 microns and chalcopyrite as anhedral blebs to 0.1 mm, with minor Kspar (anhedral crystals to 0.1 mm) along their selvages.



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MO-9-12.4: "HORNFELS" (FINE-GRAINED EQUIGRANULAR QUARTZ-ALKALI FELDSPAR-CARBONATE-CHLORITE/BIOTITE-SERICITE-CHALCOPYRITE-PYRITE-RUTILE)

Fine-grained, brownish, strongly altered rock of uncertain derivation but more probably hornfels than intrusive, strongly stockworked with a network of fine fractures/veinlets that contain sulfides (pyrite, chalcopyrite). The rock is harder than steel, but not magnetic and shows only trace reaction to cold dilute HCl, and trace stain for K-feldspar in the etched slab. Modal mineralogy in polished thin section is approximately:

Quartz (partly secondary)	45%
?Alkali feldspar (plagioclase)	25%
Carbonate (mainly ?ankeritic)	15%
Chlorite, biotite	5%
Sericite/?pyrophyllite	5%
Chalcopyrite	1-2%
Pyrite	1-2%
Rutile	1%
K-feldspar (secondary)	1%
?Anhydrite/gypsum	<1%

The mineralogy in this very fine-grained "hornfelsed" rock is difficult to quantify, but appears to be composed of quartz, ?alkali feldspar, carbonate, biotite, sericite plus minor rutile, sulfides and ?anhydrite/gypsum. If significant feldspar is present, it is not easily distinguished due to a lack of relief difference against quartz. However, the whitish colour of the etched slab suggests that in fact alkali feldspar (plagioclase such as albite) is a major component of the rock, and the estimated percentages given above reflect this assumption. Minor K-feldspar appears to be fracture-controlled and therefore is likely secondary; alteration may be potassic-phyllic.

Quartz forms interlocking subhedral to anhedral irregular crystals up to 0.25 mm in diameter, although more commonly <50 microns in size. Possible alkali feldspar crystals are of similar size and character, but are distinguished by fine flecking of sericite and carbonate. Veinlets are distinguished by coarser grain size, although the minerals are likely the same as in adjacent wallrock. Carbonate occurs either as fine fibrous aggregates (individual crystals mostly <50 microns long) or as coarser, more euhedral crystals up to 0.2 mm in diameter. Due to the lack of reactivity in hand specimen, it is possible that the bulk of the fine-grained carbonate is largely ankerite (and the coarse-grained crystals are minor calcite). Sericite or ?pyrophyllite, forms radiating rosettes up to 0.25 mm in diameter. These minerals are indistinguishable under the microscope. In places intergrowths with sericite of a flakey mineral having near zero birefringence suggest the presence of ?chlorite, likely after biotite. Biotite forms subhedral to euhedral, pale brown flakes up to 0.15 mm in diameter, mainly partly to wholly chloritized.

Sulfides, including both chalcopyrite and pyrite, and oxides that appear to be mainly rutile, are mainly controlled along narrow veinlets and hairline microfractures cutting the rock. These veinlets are mainly composed of quartz (subhedra to anhedral up to 0.2 mm long), but include lesser carbonate (fibrous aggregates up to 0.1 mm long or euhedral crystals to 0.15 mm), chlorite (subhedral flakes to 0.15 mm), K-spar (subhedra to 0.15 mm), and minor gypsum/anhydrite (subhedra to 0.1 mm). Chalcopyrite forms subhedral crystals up to 0.4 mm in diameter, commonly intergrown with or surrounding subhedral to euhedral pyrite crystals up to 0.5 mm in diameter; both are associated with rutile as euhedral to deep brown subhedral crystals mostly <0.1 mm in diameter.



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Drill Hole Sections



Chris J. Sampson
4 Dec 2008

LEGEND

- Road / Trench
- Stream
- Lakeshore
- Noranda Drill Hole
- Pacific Booker Drill Hole

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

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