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## PROSPECTING REPORT ON THE

BARITE-VON CLAIM BLOCKS

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M.K.
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VANCOUVER, BC.

STEWART AREA, B. C.

SKEENA MINING DIVISION

BARITE - 1253312
BARITE - 2253313
BARITE - 3253314
BARITE - 4253315

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VON - 1 253 316
VON - 2 253 317
VON - 3 304 814
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## GEOLOGICAL BRANCH ASSESSMENTREPORT



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## 1. INTRODUCTION

At the request of Dino Cremonese, President of Teuton Resources Corp., an exploration program was conducted on the Barite 1-4, Von 1-2 Claim Blocks. Prospecting followed by rock sampling were the main emphasis of this years work although some soil and stream sediment sampling was carried out. The purpose behind this years program was to locate areas of sufficiently high base and/or precious metal potential.

A field crew consisting of one geologist and two prospectors were on site between September 17 th to 29 th, 1991. During this time 331 rock samples, 31 talus, 6 soil and 52 silt samples were collected. These were subsequently analyzed for a suite of 31 major and minor elements. Some geological mapping was also carried out around some of the more significant showings. The Von-3 claim block consisting of 18 units was also staked to cover the northern extension of the mineralization present on the Von-2 claim block. The total cost for this years program was approximately $\$ 26,826.89$.

Both the Barite 1-4 and Von 1-3 claim blocks are richly mineralized. Of the 321 rock samples collected this past season, roughly 250 represent distinctly different showings. Of these only 10 of these showings appear to have received any previous work. Although some work has been previously carried out on the property, none of this work appears to be very comprehensive. Especially the most recent work where only the occasional sample has been collected.

Four main types of mineral occurrences are present on the property:

1. pyrite-bearing quartz vein/stockwork systems,
2. massive pyrite veins,
3. disseminated pyrite zones, and
4. galena $+(-)$ sphalerite $+(-)$ chalcopyrite veins.

Of these the first two types account for over $70 \%$ of the occurrences and can be up to 5 m wide. However the best assay values were obtained from the base metal veins (type 4).

Individual assays of up to $65.60 \%$ lead, $15.92 \%$ zinc, $5.84 \%$ copper and 51.36 oz/ton silver have been obtained over relatively narrow widths over various portions of the property. The pyrite-bearing quartz veins and massive pyrite veins resemble the mesothermal veins found elsewhere in the Stewart District which contain appreciable gold values. Since many of these veins contain significantly high concentrations in pathfinder elements such as arsenic and silver along with elevated amounts of lead, zinc and


#### Abstract

- 2 - copper. These veins could be viable exploration targets at depth.


Further work is recommended for the property, especially since much of the property has not even been prospected in a cursory fashion.

### 1.1 LOCATION AND ACCESS

The Barite-Von property is located roughly 30 km northeast of the town of Stewart, B.C. (Figure 1). Stewart in turn is located at the northern end of the Portland canal which is roughly 800 km north of Vancouver. The present population of stewart is roughly 2,000 .

Stewart is linked to the interior of British Columbia via the stewart-Cassiar Highway (37A). This highway is paved and kept free of snow year-round. There is also a daily bus and freight service, scheduled air service, plus weekly barges from vancouver.

The most convenient form of access to the property is via Vancouver Island Helicopters, based out of Stewart. However the southern portions of the Barite 2 and 3 , plus Von 1 and 2 claims can be accessed from Highway 37A. This highway along with a recently completed hydro-electric power line passes along the southern boundary of the Barite 2 and 3 claims.

### 1.2 PHYSIOGRAPHY AND CLIMATE

The topography on the Von-Barite claims varies from steep valley slopes to relatively flat glaciated mountain tops. Elevations range from 1000 feet above sea level at the southwest corner of the Barite 3 claim block to over 6,900 feet at Yvonne Peak. The valley walls of the Bear River and Cullen creek are quite steep and often hazardous to traverse, although several old trails leading to some of the old workings exist. Ice fields cover the northern portions of both the Von and Barite claim blocks.

The vegetation varies from a mature mixture of balsam, spruce, cedar and devils club at the lower elevations to alpine mosses and grasses at the higher elevations. Outcrop is generally plentiful at the higher elevations whereas the valley bottoms are often covered by a thick veneer of glacial debris.


Climatically the property receives a considerable amount of precipitation (generally over $200 \mathrm{~cm} / \mathrm{year}$ ). The snow cover generally exceeds 10 meters, although the winters are generally quite mild. Avalanches are a serious concern during the spring and winter months. Also due to the heavy winter snowfalls the upper portions of the property are only workable from late June to early October.

### 1.3 CLAIM INFORMATION

At present the Barite and Von claim blocks consist of seven claims (Barite 1-4 and Von 1-3) which total 130 units. All the claims are located in the Skeena Mining Division and with the exception of the Von 3, all are $100 \%$ owned by Teuton Resources Corp. The Von 3, staked on September 26,1991 is currently owned by Brian Sauer, but is in the process of being transferred to Teuton Resources Corp. Pending acceptance of the assessment work described in this report, the expirty dates will be as shown on Table 1.

The outline of the claims are shown on Figure 2. Tournigan Mining Explorations Ltd. presently owns many of the old crown grants in the area. For many of these claims the corner posts are no longer standing or identifiable.

### 1.4 PROPERTY HISTORY

Work began in the area of the Barite-Von claims in 1907 shortly after the town of Stewart was incorporated. Between 1907 and 1930 an extensive amount of work was carried out, mostly on the crown granted claims presently owned by Tournigan Mining Exploration Ltd.

The first claim block to receive a serious degree of work was the holdings of the George Gold-Copper Mining Company. A 115 foot long adit was completed in 1919 along with some trenching and mapping in 1926. Cominco, then the Consolidated Mining and Smelting Company of Canada, drilled 8,162 feet between 1927 and 1919 (Smitheringale, W.G., 1976).

The Enterprise property (located immediately to the south of Cullen Creek) was originally staked as the Lucky Frenchman in the early 1900's. A 35 foot long tunnel known as Frenchman's Tunnel or Tunnel "A" (Deleen, J., 1990) was completed into a zone of copper mineralization. In 1925 the property was restaked as the Enterprise Group, and was acquired by the George Enterprise Mining

$\qquad$

## CLAIM INFORMATION

| Claim <br> Name | Record <br> Number | Tenure <br> Number | Number <br> of Units | Expiry <br> Date |  |
| :--- | :--- | :--- | :---: | :--- | :--- |
| Barite 1 | $8107(10)$ | 253312 | 20 | October | 5,1992 |
| Barite 2 | $8108(10)$ | 253313 | 20 | October | 5,1992 |
| Barite 3 | $8109(10)$ | 253314 | 20 | October | 5,1992 |
| Barite 4 | $8110(10)$ | 253315 | 20 | October | 5,1992 |
| Von 1 | $8111(10)$ | 253316 | 20 | October | 5,1992 |
| Von 2 | $8112(10)$ | 253317 | 20 | October | 5,1992 |
| Von 3 |  | 304814 | 18 | September 26, 1992 |  |

Note: Expiry dates are pending acceptance of the work described in this report.

Co. Between 1925 and 1927 an extensive amount of trenching and propsecting was completed on the Enterprise claims. Several hundred feet of tunnels were also driven in 1928 and 1929 (Smitheringale, W.G., 1976).

Near the western end of the Barite - Von claims in the vicinity of Rufus Creek, some trenching and underground development was completed by the Rufus Silver-Lead Mines and Argenta Mines. In 1928 both companies were consolidated into Rufus Argenta Mines Ltd. (Taylor, D.P., 1981).

With the exception of the Heather on which a 50 foot adit was completed in 1950 , the Bear Pass area received very little in the way of exploration activity between 1935 and 1969. Between 1969 and 1978, Tournigan Mining Explorations Ltd. spent approximately $\$ 1,500,000$ on claim acquisition, geological mapping, trenching and diamond drilling. In 1974 the George Enterprise property which included the Enterprise and Heather claims was optioned by Tournigan and eventually purchased outright in 1976. A number of other reverted crown grants were also acquired by Tournigan in 1976 (Deleen, J., 1990; Smitheringale, W.G., 1976).

In 1980 a number of reverted crown grants known as the Rufus-Argyle Claims (located near Rufus Creek) were optioned from Tournigan Mining Explorations Ltd. to Kingdom Resources Ltd. Some mapping and sampling was subsequently carried out by kingdom Resources Ltd., however the claims were soon returned to Tournigan Mining Explorations Ltd.

From 1980 to 1989 the area again became inactive. This changed in 1989 when Bond Gold Canada Limited announced the discovery of a significant gold bearing zone 20 km south of the Bear Pass area (Northern Miner, 1990). This discovery, known as Red Mountain again focused attention to the eastern side of the Stewart District.

In October of 1989, Teuton Resources Ld. acquired a land position in the Bear Pass area. In all ten claim blocks (Barite 1-4, Von $1-2$, and Strohn $1-4$ ) totalling 200 units were acquired through staking. During the 1990 field season, a preliminary program of prospecting, rock sampling, silt sampling and geological mapping was carried out by Nicholson and Associates for Teuton Resources corp. A total of 55 rock and 24 silt samples were collected from the Barite, Von and Strohn claim blocks. From the Von 2 claim block serveral samples produced significant results. In particular, sample (GW-R-18) produced values of 0.121 oz/ton gold, $12.1 \mathrm{oz} /$ ton silver and $16.24 \%$ zinc from a narrow quartz-
sulphide vein. A second sample (GW-R-17) collected several meters to the south, assayed $3.5 \mathrm{oz} / \mathrm{ton}$ silver and $7.15 \%$ zinc. Several other samples were found to be anomalous in lead, zinc, copper and silver on both the Von and Barite claim blocks. In additon a cluster of silt samples (DL-S-1, 3 and 4) located in the northeastern corner of the Barite 2 claim block were found to be highly anomalous in gold, zinc, lead and to a lesser degree silver. The results of this preliminary program necessitated the need for follow-up work over the known areas of interest, plus other areas on the property (Wilson, G.L., 1991A; Wilson, G.L. 1991B).

An airborne geophysical survey was also carried out by Teuton Resources Corp. during the 1990 field season (Murton, J.C., 1990).

Rock sampling was also carried out by Orequest Consultants in 1991 on both the properties held by Teuton Resources Corp. and Tournigan Mining Explorations Ltd. However this program was very limited in terms of scope and the number of samples taken.

## 2. REGIONAL GEOLOGY

Geologically the stewart District occurs within the Stikinia Terrane of the Intermontane Belt. Immediately to the west, but in close proximity is the coast Plutonic Complex. To the east is the Bowser Basin which overlaps in the Stikinia and adjoining Cache Creek Terrane.

To date the most comprehensive published work has been by E.W. Grove (1972, et al 1982 and 1986). More recently a detailed re-evaluation of the district has been undertaken by D.J. Alldrick (1983, 1984, 1985, and 1987). On the deposit scale both the Big Missouri and Premier Silbak deposits have been recently described in detail (Galley, A.G., 1981; Brown, D.A., 1987).

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2.1
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STRATIGRAPHY AND LITHOLOGY
The Stikinia Terrane which hosts the Stewart consists of a middle Paleozoic to lower Mesozoic package of eugeoclinal rocks. Within the Stewart District the stratigraphic succession is somewhat more restricted consisting entirely of the middle Jurassic to upper Triassic Hazelton Grup. Intruding the rocks of the Hazelton Group are a series of Jurassic and Tertiary intrusive rocks.

Based upon the regional mapping of Alldrick (1987) and Grove (1972) the Hazelton Group has been subdivided into four formations consisting of the; 1) Unuk River, 2) Betty Creek, 3) Mount Dilworth, and 4) Salmon River Formations.

The oldest of these is the upper Triassic to lower Jurassic Unuk River Formation. This consists of a sequence of thick-bedded epiclastic volcanic rocks and lithic tuffs, with associated pillow lavas, carbonate lenses and thin-bedded siltstones. The volcanic rocks are compositionally andesites, consisting predominantly of a series of green to greenish-gray fragementals which range in size from fine grained tuffs through breccias. Within the andesite tuffs are a series of hematitic epiclastic lenses. This causes the colour of these rocks to grade from an apple-green to a bright brick red (Grove, E.W., 1986). The tuffs for the most part are composed almost entirely of angular clasts and exhibit a poor degree of sorting.

Grove (1986) has divided the Unuk River Formation into a lower, middle and upper member based upon the presence of two local unconformities. The depositional environment has been interpreted to be an island arc under "shallow-water marine" conditions. Furthermore, the direction of transport during the lower Jurassic was predominantly from west to east which suggests a topographic high which was offshore at the time.

In the immediate Stewart area Alldrick (1987) has divided the Unuk River Formation into seven members. This being based largely upon the presence of an upper and lower sequence of siltstone, plus lithologies which are considered to be distinctive. The epiclastic rocks are by far the most abundant. Three andesitic tuff members have been defined which are separated by a lower and upper unit of siltstone. The uppermost of the tuff members is also the most widespread attaining a thickness of roughly $2,000 \mathrm{~m}$. It is thought the entire sequence represents a predominantly sub-aerial accumulation with the two regional siltstone markers denoting periods of submergence (Alldrick, D.J., 1985).

Volcanic flows within the Unuk River Formation include a series of augite porphyries and the Premier Porphyry, both of which occur near the top of the Unuk River Formation. The more distinctive of two being the Premier Porphyry which consists of a series of bimodal, feldspar-porphyritic and andesites. Phenocrysts consisting of small (3-5mm) white, subhedral to euhedral plagioclase crystals, plus large ( 1 to 5 cm ) buff-coloured, euhedral orthoclase crystals and $5-10 \mathrm{~mm}$ long hornblende crystals. This unit outcrops along the uphill side of the Silbak Premier mine site along the west sides of Mount Dilworth, and is identical in appearance to dykes of the Premier Porphyry (Alldrick, D.J., 1985).

The augite-porphyry flows are restricted to the area of Long Lake and may be the stratigraphic equivalent to the Premier Porphyry Flows (Alldrick, D.J., 1985). In appearance this rock type is massive, consisting of euhedral green-black phenocrysts of augite ( $2-8 \mathrm{~mm}$ long) which are set in an aphanitic, medium grey to olive green matrix (Dupas, J.P., 1985).

Conformably, overlying the Unuk River Formation is the lower Jurassic Betty Creek Formation. Laterally this unit can be traced for roughly 170 km stretching from the Iskut River in the north, to south of Alice Arm (Grove, E.W., 1987). Over this area the estimated thickness of this unit varies considerably from 4 to 1,200 meters. It has also been subdivided into two members, one of which consists of a series of dacitic volcanics and the other a sequence of sediments.

The dacitic volcanics consist of dust tuffs, crystal tuffs, lapilli tuff and porphyritic flows which are interbedded within the sediments. They also appear to be of relatively local extent since many areas within the epiclastic rocks contain no dacitic volcanics.

The sedimentary facies of the Betty Creek Formation consist of a series of conglomerates, sandstones and siltstones. Although these rocks are predominantly purple to bright maroon coloured, some local greenish, mottled purple and green units are present. As the hematized nature of these rocks suggest the environment of deposition was predominantly sub-aerial, with the conglomerates possibly representing debris flows. Overall the material which comprises the sediments of the Betty Creek Formation appears to have been derived locally (Grove, E.W., 1986).

A lower Jurasic felsic volcanic sequence known as the Mount Dilworth Formation overlies the Betty Creek Formation. Although relatively thin this unit is distinctive and provides an important regional marker in the district. Overall the Mount Dilworth Formation has been subdivided into five distinct facies of felsic tuff, plus a basal pumice facies.

### 2.1.1 INTRUSIVE ROCKS

Due to the relative proximity of the coast Plutonic Complex the stewart area is crosscut by a variety of intrusive rocks.

The oldest is a large body of granodiorite lying at the eastern edge of the Stewart District known as the Texas creek Granodiorite. The core to this body has recently been dated at 206 +6 Ma with some peripheral dykes and sills at $189+(-) 22 \mathrm{Ma}$ (Alldrick, D.J., et.al., 1987).


GROVE 1986
Teuton Resources

SCALE
1:100000

## Barite, Von \& Strohn Properties

FIG.3: REGIONAL GEOLOGY

NTS
104 A/4W


METAMORPHIC ROCKS

## TERTIARY

MORNFELS（a）：PMYLLITE，SCHIST（b）SOME GNEISS（C）

## JURASSIC

HORNFELS W）PHYLLITE SEMI－SCHIST，SCRIST TD GNEISS CATACLASITE mYLONITE（d）．TACTITE lal

## TRIASSIC

SCHIST（a）．GNEISS ib），CATACLASITE，WYLONITE（kI
homnalende on amphibole developed siotite developeo
motassium arlosean developto
afEA UNMANTEO

## SYMBOLS

ADIT
anticline inommal overtumneoi
BEDOING IHOAIZONTAL．INCLINED．VERTICAL．CONTORTEOI
BOUNDAAY MONUMENT
CONTOUNS IINTENVAL 1,000 PEET


FAULT TDEFINED，APPAOXIMATE）
AULT ITMHUST
FAULT MOVRMENT（ARPAAENT）

FOLO AXES，MINEAAL LINEATION IHOAIZONTAL INCLINEDI－ foesil locality
（D）
OEOLOGICAL CONTACT IOEFINED．APPAOXIMATEI
olacial stmiae
OMAVEL SANO，OA MUD
HEIGHT IN FEET ABOVE MEAN SEA LEVEL
INTERNATIONAL BOUNOAAY $\qquad$

JOINT SYSTEM IINCLINED，VERTICAL

## MAREN

MINING PROPERTY
AIOGE TOP
SCHISTOATY INCLINED．VEATICALI
SYNCLINE ITMORAAL OVERTURNEDI
TUNNEL
VOLCANIC CONE

[^0]The Premier Porphyry dykes represent a series of medium to dark green porphyritic rocks which contain $1-4 \mathrm{~cm}$ long phenocrysts of orthoclase and smaller phenocrysts of plagioclase. Exposures of this rock type occur along the west side of the Salmon River, with the greatest concentration within the immediate vicinity of the Premier Silbak Mineralization (Alldrick, D.J., 1985). Recent age dating has produced an age of $194+(-) 2.0 \mathrm{Ma}$ for a dyke of the Premier Porphyry (Alldrick, D.J., 1985). Compositionally a rock analysis from the Premier Porphyry Dyke straddles the andesite-dacite field. Generally the premier Porphyry is interpreted to form elliptical pipes, plugs and volcanic necks (Alldrick, D.J., 1987).

The Summit Lake granodiorite, also termed the Berendon Granodiorite, is a medium to coarse-grained hornblende granodiorite. It outcrops immediately to the north and west of Summit Lake in the vicinity of the Granduc Millsite. This intrusive, like the Premier Porphyry and Texas Creek Granodiorite, is relatively old having been dated at $192.8+(-) 2.0 \mathrm{Ma}$ (Alldrick, D.J., et.al. 1987).

Underlying the townsites of Hyder and Stewart is the Eocene aged Hyder Stock. Although predominately a coarse-grained biotite granodiorite, this stock does range in composition to a quartz monzonite. Peripheral the Hyder stock are a number of white to cream aplite dykes, plus the silver-rich galena-sphalerite veins of the Prosperity/Porter Idaho Mine (Alldrick, D.J. and Kenyon, J.M., 1984), Silverado Mine (White, W.E., 1946) and Bayview Mine (Alldrick, D.J., 1985).

Similar to the Hyder stock is the Boundary Granodiorite. This intrusive straddes the canada - United States border southwest of the Salmon Glacier, intruding the older Texas Creek Granodiorite (Alldrick, D.J., 1985).

Three swarms of Tertiary felsic to mafic dykes cut through the Stewart District. Occupying the widest area is the Portland Canal swarm which goes past the south end of Mount Dilworth crossing the Bear River Ridge at Mount Bunting. Dykes of this swarm are found to trend east-southeast and dip steeply to the southeast. In the vicinity of Bitter Creek a number of these dykes have coalesced to form the Bitter Creek Monzonite.

### 2.2 STRUCTURE

Three, possibly four, phases of folding were operative from the late Jurassic through to the late Cretaceous in the Stewart area. Subsequently in the Eocene a period of extensional tectonics began which may have lasted until the oligocene (Brown, D.A., 1987).

Generally, the fold styles in the stewart area are disharmonic with sedimentary rocks deforming much more readily than the volcanics. In addition the folds within the volcanics tend to be larger and more structured than in the sediments.

Characterizing the first phase folds are a series of westerly plunging recumbent folds. Although relatively rare, these folds tend to be tight to isoclinal and verge to the southeast (Brown, D.A., 1987).

Associated with the second phase folds is a pronounced axial plane cleavage. A contoured plot of poles to the F1 foliation for the Big Missouri Mine area indicates an orientation of $145 / 55$ degrees $W$ (Galley, A.G., 1981). In addition, structures produced by second phase of folding tend to be larger and more open.

The third phase of deformation consist of a series of north to northwesterly plunging structures. The axial planes for these folds tend to be steep (Brown, D.A., 1987) and according to Galley (1981) dip at 70 degrees to the west. Possibly related to this phase of deformation is a major synclinorium which is the dominant structural feature of the Stewart District.

In addition the American Creek anticline and Mount Bunting Syncline also appear to be related to this structure (Grove, E.W., 1986).

In contrast to the third phase of deformation, the fourth phase structures are generally considered to be quite small. Over most of the Stewart District this phase of deformation is manifested by a series of east-west pencil lineations, plus small scale folds or warps (Brown, D.A., 1987). According to Galley (1981) the axial planes for these folds strike at N70E and dip at 70 degrees to the south.

Several steeply dipping easterly-striking zones of intense deformation are present. Grove (1972, 1986) termed these cataclastic zones and felt they were important in localizing many of the mineral deposits in the Stewart area. Commonly these are relatively narrow zones (less than 2 m ), however at the Riverside

Mine area an easterly striking mylonite zone has been documented which is over 500 m in width. Textures displayed by this zone include C-S fabrics, asymmetric augen, plus broken quartz and plagioclase crystals. Also characteristic of this mylonite zone are lineations defined by the chlorite and biotite which plunge to the west at 45 degrees.

### 2.3 MINERAL DEPOSITS

The Stewart area has long been known as a producer of precious and base metals In very general terms, five main types of mineral deposits are present and these account for over 95\% of the past production.

The first and historically most important are the quartzcarbonate vein and/or shear zones represented by Premier Silbak, SB (Tenajon Silver), Red Mountain, Johnny Mountain and Sulphurets creek area. These deposits tend to be restricted to a $2,000 \mathrm{~m}$ stratigraphic interval within the Unuk River and Betty Creek Formations. Typically the veins consist of quartz and are brecciated, consisting of fragments of the wallrock chalcedonic quartz and sulphides. The sulphide minerals include pyrite, sphalerite and galena, along with minor amounts of tetrahedrite, chalcopyrite, pyrrhotite and arsenopyrite. Electrum, native gold and silver are also present. In the case of the Premier Silbak orebodies, proximal to the mineralization is a silicified zone containing a potassic alteration assemblage (McDonald, D., 1987).

The next class of mineral deposit are essentially massive sulphide vein containing ore grade gold values. Scottie Gold and the Snip deposit characterize this type of deposits consisting of massive pyrrhotite and/or pyrite veins. Enveloping these veins are zones of intense chlorite and hematitic siliceous alteration (Alldrick, D.J., 1983).

Representing the third class of mineral occurrences are a series of massive galena-sphalerite-freibergite veins. These typically occupy shears and faults around the margins of the Hyder Pluton. The Prosperity and Porter - Idaho Mines represent the best examples of this type of mineralization, current reserves of which stand at 853,000 tons containing $20.0 \mathrm{oz} /$ ton silver (Schroeter, T.G. and Panteleyev, A., 1986).

The fourth class of major mineral occurrence is represented by only one example, the Eskay Creek Deposit. Associated with felsic volcanics of the Mount Dilworth Formation, this deposit consists of veins and bands of sphalerite, galena,

TABLE 2-MINES AND MAJOR PROSPECTS OF THE STEWART - ISKUT - UNUK
Property Gommodity Grade Tonnage and Production

## Stewart area



## Anyox - Kitsault area

| Dolly Varden, | Ag/Pb | 19.9 Moz Ag and 5500 t Pb North |
| :--- | :--- | :--- |
| Star and Torbit |  | produced from $1919-1959$ |
| Anyox | Cu/Au/Ag | 24.7 Mt of ore grading $1.5 \% \mathrm{Cu}$, |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Iskut - Unuk area


stibnite and arsenopyrite with minor amounts of tetrahedrite, tennatite, chalcopyrite, pyrite, electrum and native gold. Portions of this deposit such as the $21 B$ Zone appear to be exhalitive, whereas the remainder is clearly epigenetic.

Volcanogenic massive sulphide mineralization such as what was present at the Granduc and Anyox Mines represent the fifth class of major mineral deposits. At the Granduc mine a total of $16,725,000$ tons of ore containing $1.25 \% \mathrm{Cu}$, and $0.23 \mathrm{oz} / \mathrm{ton}$ silver was produced, with the current reserves standing at 9.89 million tons of $1.8 \%$ copper. The deposit consists of a series of concordant lenses of massive sulphide which are contained within a cataclaste zone. Individually the ore lenses are up to tens of meters thick and consist of pyrite, chalcopyrite, pyrrhotite and magnetite with lesser amounts of sphalerite, galena, arsenopyrite, bornite and cobaltite (BCDM Mindep Files 104/B). Also thought to be stratiform are the Dolly Varden, Star and Torbit Deposits (Devlin, B.C., 1987). Overall these deposits tend to be very high in silver, averaging $10 \mathrm{oz} / \mathrm{ton}$, but are found to contain only $0.5 \%$ lead and $0.8 \%$ lead. Barite is also present as is disseminated to massive pyrite, along with minor amounts of chalcopyrite and traces of argentite, pyragyrite and native silver (BCDM Mindep Files 103/P).

Within the immediate area of the Barite-Von claims, three main types of sulphide deposits have been recognized by Smitheringale (1976); 1) vein deposits, 2) stratibound deposits, and 3) disseminated-stringer deposits.

Representing the first style of mineralization are some $\mathrm{Pb}-\mathrm{Zn}-\mathrm{Ag}-(\mathrm{Cu})$ veins on the Red Top, Argenta and Grey Copper claims. Gangue minerals for these veins include quartz, calcite, barite and/or jasper. The veins can be up to 2 m wide and $1,000 \mathrm{~m}$ long, striking obliquely to the regional strike of the bedding. They are dip steeply and are restricted to the upper part of the Unuk River Formation. Grades range up to 15.9 oz/ton silver, $50 \%$ lead, $1.0 \%$ copper and $15.0 \%$ in the case of the Red Top showing (Keyte, G., 1978).

Stratiform $\mathrm{Cu}-(\mathrm{Zn}, \mathrm{Pb}, \mathrm{Ag})$ showings occurring in an argillite-tuff iron formation represent the second main type of mineral occurrence. Pyrite and/or pyrrhotite, chalcopyrite, sphalerite and galena are the main sulphides. Quartz (often chert), jasper, hematite, chloritic tuff or volcanic breccia and argillite form the gangue. In places the sulphides are massive to semi-masive, however, they generally occur as laminae, lenses, stringers and disseminations. Examples are the showing at the George Gold-Copper adit, the Cliff 'vein' on the New York and London claims, the Erickson 'vein' and the lower showing on the Red

Top property. Some of these showing have been described as replacement or bedded replacement deposits and others, where bedding dips steeply, have been described as veins. At the George Gold-Copper adit, Cominco has estimated that there exists in the indicated, inferred and potential ore classes, a reserve of 500,000 tons grading 2.0 to $2.9 \%$ copper, 0.05 to $0.08 \mathrm{oz} /$ ton gold and 0.38 to 0.50 oz/ton silver (Deleen, J., 1990).

The third type of mineral occurrence is represented on the Enterprise, Heather and Rufus claim groups where disseminations and stringers of pyrite and chalcopyrite are present. The host rocks to these zones have been weakly to strongly altered by silicification, chloritization, pyritization or the addition of quartz veins. There are also a number of highly silicified pyritic zones that are barren of economic minerals. These showings occur both below and above the argillite-tuff-iron formation unit. Many of the gossans exposed in the cliffs in the Bear River Pass area are zones of disseminated or stringer pyrite.

## 3. PROPERTY GEOLOGY

The main emphasis of this past seasons fieldwork was to find new mineral occurrences through prospecting. A limited amount of geological mapping was also carried out. However this mapping was generally conducted within the immediate area of the mineral occurrences.

Previously much of the property has been mapped in a regional manner by Grove (1986) and Smitheringale (1976). On a district wide scale (l:1 000,000), Grove (1986) has provided a reasonably coherent understanding of the major units. Whereas on the scale of the Bear Pass are (1:25,000), Smitheringale (1976) has adequately defined and outlined the distribution of a more detailed stratigraphy.

### 3.1 STRATIGRAPHY AND LITHOLOGY

In general terms the stratigraphy of the Bear Pass area consists of a lower Jurassic sequence of tuffs, flows and sediments of the Unuk River formation which is succeeded upward by the lower members of the middle Jurassic Betty Creek formation. Intruding both the Betty Creek and Unuk River formations is a quartz monzonite stock which is likely tertiary in age. The stratigraphy is in general relatively flat - lying and dipping gently to the south on the south side of the Bear River, and moderately to the north on the north side. Consequently, the oldest stratigraphic unit appears in the bottom of the Bear River Valley.

According to the regional mapping of Smitheringale, the oldest unit on the property is a series of massive andesitic pyroclastics and volcanic flows which belong to the Unuk River formation. Also present in the vicinity of the New York showing on the south side of the Bear Valley are a series of dacites, rhyolites and tuffs, along with a limestone unit (keyte, G., 1978).

Conformably overlying this unit is a thin sequence of mixed chemical and clastic sediments consisting of argillite, tuff and a cherty iron formation. It outcrops about the 3,200 foot ( 975 m ) elevation on both sides of the Bear Valley. In thickness it varies from 6 to 30 m . It can also be traced for at least 5.7 km on the south side of the Bear River Valley and 2 km on the north side. This unit is especially important in that it hosts all the known stratabound sulphide showings, such as the Red Top, George Copper and New York.

The uppermost member of the Unuk River Formation is a sequence of andesitic tuffs and breccias. In comparison to the lower member, this unit is also more distinctly fragmental.

Conformably overlying the Unuk River formation at approximately the 5,000 foot contour is the Betty Creek formation. The lower members of this unit consist of crystal and lithic tuffs along with minor amounts of chert and limestone. The crystal and lithic tuffs are variably red and green, and generally poorly sorted. In the area immediately to the southwest of the New York showing, a series of volcanic breccia, tuff, sandstone and siltstone are present. This unit is in general better sorted and is easily traceable (Grove, E.W., 1972).

Situated at the mouth of cullen Creek is a small monzonite stock. It is approximately 1.0 km in diameter and is likely related to the Tertiary Bitter Creek Dyke Swarm. Several other steeply dipping feldspar porphyry dykes trend west to the northwesterly across the area (Smitheringale, W.G., 1976). These are also likely Tertiary in age and possibly related to the Bitter Creek Dyke Swarm.

Based upon this past years mapping, unsorted intermediate (likely andesitic) volcanic tuffs, breccias and conglomerates predominate. In colour they are generally green, although maroon to red intervals occur. Maroon coloured clasts also occur in a number of localities. Often cobble sized clasts are present in a fine-grained tuffaceous matrix. Upward both stratigraphically and in elevation, beds of well sorted material appear. These beds are generally less than 10 m thick and consist of both green and maroon coloured clasts. The appearance of these beds also appear to denote the lower members of the Betty Creek formation.

Also present in the northwestern corner of the Von-2 claim is thick (greater than 100m) unit of dacite. In appearance this unit is light gray, medium-grained with $10-20 \%$ phenocrysts of plagioclase. It is separated by the underlying tuff - breccia units of the Unuk River formation by a horizontal fault zone.

Regionally, most of the metamorphic grade is zeolite to lower green schist facies. However, locally, amphibolite facies is attained.

### 3.2 STRUCTURE

In general terms, the structure of the property is quite simple. The bedding strikes east-west or parallel to the side of the Bear Valley. On the south side of the Valley, the bedding dips gently to the south whereas on the north side it dips moderately northwards. Sharp folds have been observed in a number of places producing steep dips and strikes that diverge from the general trend (Smitheringale, W.G., 1976).

A number of faults are inferred to be present on the property. One of the more prominent ones trends northeasterly along Cullen Creek (Grove, E.W., et al, 1982). Several low angle faults were also observed in outcrop.

## 4. PROSPECTING

The main emphasis of this past seasons work was prospecting. When successful this was followed by detailed rock sampling on some of the more promising showings. Mineralized and/or gossanous outcrops on the property were plentiful. The ones that were sampled this past year represent only a small percentage of those that are present. However for the purpose of this past years program, a reasonable appreciation of the property has been attained.

A total of 321 rock, 31 talus fines and 6 soil were collected. In general most of the rock samples represented grab samples, however on some of the larger or more richly mineralized showings, channel samples were taken. In general the maximum width of the channel samples was 1.0 m . Consequently over the wider showings a number of samples were taken. Once collected the samples were then analysed for a suite of 31 major and minor elements.

Represented by the 321 rock samples are roughly 250 mineralized showings. With the exception of roughly 10 showings,
the remainder appear not to have been sampled previously, and consequently represent new discoveries. Some of the more prominent gossans appear to have been sampled roughly ten to fifteen years ago, most likely for porphyry copper mineralization. Several more recent flags were found bearing a variety of numbering schemes. However the distribution of these flags appears to be quite sporadic and likely the result of the odd day trip. As shown on Figure 4, a number of the showings occur inside of the limits of the glacier. Since the topographic features for the base maps were prepared in 1986, the glaciers must have receded a considerable distance, revealing a number of newly exposed showings.

In general terms, the mineralized showings of the BariteVon Claim Blocks fell into 4 main classes; 1) pyrite-bearing quartz vein/stockwork systems, 2) massive pyrite veins, 3) disseminated pyrite zones and 4) galena $+(-)$ sphalerite $+(-)$ chalcopyrite veins.

The most prolific type of mineralization were the pyritebearing quartz veins. These veins range in width up to 5 meters and have been traced for at least 100 m . Commonly they are brecciated with clasts composed of rock fragments and earlier formed quartz. Pyrite occurs in quantities up to $50 \%$, however is generally in the 1 - $10 \%$ range occurring as small irregular veins or coarse clots. Tourmaline occurs in some of the larger, more intensely developed veins ( $B R-430$ ). In addition, the veins in the eastern portion of the property (Von - 2, 3 and eastern Barite - 1) tend to be dark grey to almost black. This again suggests the presence of tourmaline. In terms of timing these veins predate the F1 cleavage. Over the western portion of the property, these veins consistently strike north to northwesterly (155 to 180 degrees) and dip vertically. However over the eastern section, these veins tend to be orientated more easterly at between 120 and 150 degrees. Roughly $50 \%$ of the showings sampled this past year represent this type of mineralization.

Perhaps representing a continuium of the pyrite-bearing quartz veins are the massive pyrite veins. These veins tend to be more abundant in the easternmost portion of the Von - 2 claims. These veins generally contain $50-80 \%$ pyrite, with the remainder being quartz. Often sericite-altered fragments of the wallrock are present. In addition, the wallrocks tend to be bleached, and possibly sericite altered for approximately 1.0 m . The largest of these veins ( $B R-479$ ) is approximately 7 m wide. The orientation of these veins is generally north to northwesterly and steeply dipping. Roughly $20 \%$ of the showings sampled this past year represent this form of mineralization.

The disseminated pyrite zones represent the weakest form of mineralization present on the property. This type of mineralization is generally present as coarse cubes of pyrite (up to 1.0 cm wide) which consistitate $1-3 \%$ of the rock. The zones hosting this type of mineralization are generally irregular in outline being tens of meters in width. The host rocks tend to be lighter in colour, reflecting an incipient degree of silicification and/or sericite alteration. In general this mode of mineralization tends to be most abundant in the central portion of the Barite - 2 claim. Although this form of mineralization is relatively abundant, it only represents about $15 \%$ of this years sampling.

The massive galena $+(-)$ sphalerite $+(-)$ chalcopyrite veins represent the mode of mineralization which produced the best assay values this past season. They have also been the focus of much of the past work on the crown granted claims presently owned by Tournigan Mining Exploration Ltd. These veins occur throughout the central and western portion of the property representing roughly $20 \%$ of the showings discovered this past year. They range from being composed of massive galena to mostly sphalerite and chalcopyrite. Gangue minerals consist of quartz, and/or calcite. In size these veins range from 5 to 35 cm , and can be traced for up to 200 m .

Described below are a number of the significant showings in terms of grade and size. Numerous ore grade assays were obtained from the showings discovered through the prospecting. Collelated in Appendix A is a description of the mineralization represented by the assay samples. Also plotted on Figures 5-10 are the results of the geochemical analyses.

## 4.1

SHOWING BH-1
This showing is located in the north-central portion of the Barite - 2 claim. It consists of a series of small massive galena veins ( $B R-459 \mathrm{~A} \& \mathrm{~B}$ ), plus several pyrite-bearing quartz veins that contain minor amounts of sphalerite (BR-461) Although sample $B R-459 A$ contained extremely high silver and lead values ( $51.36 \mathrm{oz} / \mathrm{t}$ on and $65.60 \%$ respectively), the vein was only 3 cm wide. Sample BR-461 which contained $4.6 \%$ zinc, $2.4 \%$ lead and $4.99 \mathrm{oz} /$ ton silver is more significant being $10-20 \mathrm{~cm}$ wide, and is traceable for at least 50 m .

### 4.2 SHOWING BH-2

This showing represents one of the wider pyrite-bearing quartz veins on the property. In outcrop this vein system is 2 3 cm wide and can be traced for at least 75 m . Just prior to the
work carried out this past season, this outcrop had been blasted by another company. The orientation of this vein system, like many of the others in the area, is 177/90. The pyrite content averages $10 \%$, ranging up to $25 \%$ over the central portion of the vein system. Angular clasts of altered volcanic rock, hematite, and quartz are enclosed in a matrix of quartz. The host rock is a dark green mafic to intermediate agglomerate.

Assays from this vein system were found to be anomalously high in silver (5.0-12.0 ppm), arsenic (195-505 ppm), and lead (166 1048 ppm ). The iron content also ranged up to 9.41\%.

### 4.3 SHOWING BH-3

Located in the northwestern corner of the Von-2 claim, this showing represents the widest massive pyrite vein on the property. Overall this vein averages $50 \%$ pyrite with the remainder being composed of altered fragments of volcanic rock. This vein is orientated at $155 / 90$ with the northern end truncated by a fault trending $120 / 90$. A series of 1.0 m wide chip samples were taken across this vein. A number of the samples were anomalously high in arsenic ranging from 95 to 1405 ppm . With the exception of iron the remaining elements were in the range of background values. In width this vein is roughly 5.0 m wide. It can also be traced for at least 75 m to the south, over a steep cliff. Alteration consisting of bleaching, and possibly silicification envelops this vein for at least 3 m .

## 4.4

## SHOWING BH-4

This area represents one of the more intensely mineralized portions of the property. Numberous pyrite and pyritebearing quartz veins are present in this area. The sampling caried out to date only represents a small fraction of the mineralization that is present in this area. Most of the veins consists of pyrite with varying amounts of quartz. These veins average $20-30 \mathrm{~cm}$ in width and continue for at least 50 m . The attitude of these veins is generally north-south and steeply dipping. Over an area of roughly 500 by 500 m these veins occur at a frequency of at least one every 10 m .

Overall these veins tend to be quite elevated in silver and arsenic. Where the pyrite content is greatest, the silver values tend to be above 10.0 ppm . Samples $\mathrm{BR}-473$ and 474 B in particular contained 2.26 and $1.43 \mathrm{oz/ton}$ silver respectively, with the iron values being 10.89 and $12.88 \%$. In all, fifteen samples from this area contained more than 10.0 ppm silver. As for arsenic, two samples (BR-479B and 479 H ) exceeded $1,000 \mathrm{ppm}$ with a number of the other samples exceeding 100 ppm .

This showing occurs a fault zone host pyrite-bearing quartz vein located roughly in the centre of the Barite - 1 claim. The width of this vein is roughly 50 cm wide and can be traced for at least 200 m . In addition to quartz, pyrite and minor amounts of galena are present. The attitude of this vein is $40 / 30 \mathrm{E}$, although several small offshoot veins are present having steeper dips. Fault gouge is also present, generally in the hanging wall of the vein.

Several of the samples (SR - 6A, 7, and 8) contained greater than 10.0 ppm silver. In addition, two of these samples (SR - 7 and 8) contained 2,650 and $1,426 \mathrm{ppm}$ lead respectively.

### 4.6 SHOWING BS-2

Located in the northwestern corner of the Barite - 2 Claim this area represents a series of silicified outcrops which contain minor amounts of galena, sphalerite and chalcopyrite. The samples representing this area (SR-30 to 37) come from an area of roughly 100 by 100 m . Trace amounts of disseminated galena, sphalerite and chalcopyrite occur along some of the fracture surfaces. The volcanics hosting this mineralization are heavily silicified and quite rusty.

Silver values in this area range up to $1.38 \mathrm{oz} /$ ton (Sample SR - 32), with the lead values ranging up to $1.52 \%$ (Sample SR - 34). Both samples SR - 32 and 34 contained anomalously high copper values at 2,172 and $1,282 \mathrm{ppm}$ respectively. Zinc was also quite high in Sample SR - 32 at $4,181 \mathrm{ppm}$.
4.7

SHOWING BS-3
This area also occurs in the northwestern portion of the Barite -1 claim, on land that may belong to the Crown Grants owned by Tournigan Mining and Explorations Ltd. However these showings do occur very close to the claim boundary and the exact position of this boundary may be in doubt. An old camp along with some old trenching is present in this area. The host rock is a series of mafic to intermediate volcanics which contain small quartz veins containing malachite, sphalerite, chalcopyrite and galena. The veins vary from 5 to 10 cm in width and are generally orientated at 110; dipping between 30 and 75 degrees to the south.

The assay values from these veins are quite high in silver, copper, zinc and lead. In particular, sample SR - 46 contained $40.60 \%$ lead, $4.96 \% \mathrm{zinc}$ and $10.24 \mathrm{oz} /$ ton silver. Whereas sample SR - 45 contained $2.24 \%$ lead, $4.56 \%$ zinc and $0.99 \mathrm{oz} /$ ton silver.

## 4.8 <br> SHOWING MG-1

This showing is located in the western portion of the Barite - 4 Claim. It consists of a quartz breccia shear zone which averages 1.0 m in width. The strike of this vein is 96 degrees with the dip being 60 degrees to the south. In length this vein system has been traced for at least 125 m and remains open. Pyrite, glaena and malachite are present in varying amounts. Some of the quartz is also vuggy. The samples representing this vein system include MR - 246, 248, 249 and 251 to 254. Four talus samples were also collected (MT 244, 245, 247 and 250) in the areas of heavier overburden.

Sample MR - 24A contained 2.00\% lead and 2.35 oz/ton silver, with Sample MR - 251 containing 5.43 oz/ton silver. Arsenic was also elevated in most of the samples attaining a high of $2,050 \mathrm{ppm}$ in Sample MR - 248. Overall the talus samples were reasonably low, the exception being Sample MT - 250 which contained more than 30 ppm silver and $1,035 \mathrm{ppm}$ arsenic.

## 4.9 <br> SHOWING MG-2

Situated in the eastern portion of the Barite - 4 Claim, this showing represents a series of irregular galena veins. These veins generally strike between $70 / 64 \mathrm{~S}$ and $56 / 39 \mathrm{~S}$ and are up to 2.0 cm wide in the case of Sample MR - 222. Along strike these veins have been traced for at least 100 m . Quartz and calcite are present in addition to galena.

The highest assay values were for lead and silver. In particular, Sample MR - 224 contained $36.70 \%$ lead and $5.84 \mathrm{oz} / \mathrm{ton}$ silver. The next highest was Sample MR - 222 which contained $32.50 \%$ lead and $9.32 \mathrm{oz} /$ ton silver over 20 cm . Other significant samples include M4 - 216, MR - 223 and MR - 226 which contained $17.90 \%, 22.60 \%$ and $10.40 \%$ lead respectively. Zinc was also high in all the samples ranging from 1,230 to $6,650 \mathrm{ppm}$.
4.10 SHOWING MG-3

Located near the centre of the Barite - 1 Claim, this showing represents a massive sphalerite - chalcopyrite - galena vein. In width this vein is up to 20 cm wide and can be traced for over 80 m . Like the other base metal-bearing veins, the strike of
this vein is southeasterly at 134/90. Bornite is the main copper mineral, although minor amounts of chalcopyrite are also present. Galena, sphalerite and pyrite represent the remainder of the sulphide minerals.

All of the samples (MG - 270A, B, C, D and E) contained significant values in copper ( 2.72 to $5.84 \%$ ), silver ( 3.48 to 7.44 oz/ton), zinc ( 0.41 to 15.92\%), and lead ( 0.32 to 3.32\%). Cadmium was also significantly enriched with three samples (MR - 270A, C and D) containing greater than $1,000 \mathrm{ppm}$.

## 5. STREAM SEDIMENT GEOCHEMISTRY

During the course of the fieldwork, a total of 52 silt samples were collected and analysed for a suite of 31 major and minor elements. These were collected from the active portions of every major drainage that was encountered. In addition, some of the major drainages were sampled at intervals of every 250 m .

The purpose behind collecting the stream sediment samples was to isolate aeas of anomalous stream geochemistry whereby further work could be concentrated.

### 5.1 RESULTS

In general terms, the use of stream sediment sampling proved to be a useful means of isolating several areas of anomalous geochemistry. More specifically, a number of anomalous areas were outlined for lead, zinc, copper, arsenic and silver.

Overall the background values for lead, zinc, copper, arsenic and silver were in the order of $75,125,25,50$ and 1.0 ppm respectively. The response for gold was especially subdued ranging from 5 to a high of 20 ppb . Mo was also relatively low (1 - 4ppm) somewhat negating the possibility of locating a porphyry cu-Mo mineralization on the property.

One of the more highly anomalous (SS - 70) was located at the eastern extremity of this years sampling. Abundant pyrite mineralization was found in this area, with the headwaters for this stream located under a large glacier. Zinc was especially anomalous at $1,431 \mathrm{ppm}$, lead, copper, arsenic and silver were also significantly anomalous attaining values of $644 \mathrm{ppm}, 190 \mathrm{ppm}, 110$ ppm and 9.8 ppm respectively. These represent the highest values for zinc and coper, the second highest for silver and third highest for lead on the property.

The highest value for silver ( 21.6 ppm ) came from Sample SS - 69. This sample was located in the southern portion of the Barite - 1 Claim, downslope from a number of weakly altered pyrite showings. No other elements were found to be anomalous in this sample, nor were the rock samples in this area especially high.

Another series of significant samples occurs in the northwestern corner of the Barite - 2 Claim. Here samples SS - 42 to 63 contain a number of anomalous values for silver, copper, lead, zinc and to a lesser degree, barite. In particular, sample SS - 51 contained 6.0 ppm silver, 860 ppm lead and 702 ppm zinc. The second highest values for lead and zinc and the third highest for silver. Somewhat collaborating the anomalous nature of this area are rock samples $S R-64, S R-49$, $S R-45, S R-46$ and $S R-$ 47. These samples were all found to be anomalously high in silver, zinc, copper and lead. Overall the zinc content in the drainages represented by samples SS - 42 to 67 were above 300 ppm , and with the exception of one sample (SS - 57), all the samples were above 1.0 ppm for silver and 150 ppm for lead. These results also substantiate the anomalous values obtained in 1990 by Nicholson and Associates for samples DL - S - 1 to DL - S - 4 (Wilson, G.L., 1991a). Unfortunately the anomalous gold values obtained in samples DL - S - 3 and DL - S - 4 was not duplicated by this years sampling. Furthermore this years results suggests the northwestern corner of the Barite - 2 Claim should be looked at in detail, since these anomalous silt samples were taken upstream of the known mineralization at the BS - 2 showing.

Anomalous silver values were obtained from a number of samples in the southwestern corner of the Von - 3 claim (samples MS - 284 to MS - 291, MS - 305). Also found to be weakly anomalous in this area were a number of the lead, zinc and arsenic values.

## 6. CONCLUSIONS AND RECOMMENDATIONS

There is an abundance of mineralization on these portions of the Barite 1-4 and Von 1-3 that were covered by this past seasons prospecting program. As a result of a two week prospecting program by two prospectors and a geologist, roughly 250 showings were discovered. Of these roughly 240 represent new discoveries.

The showings present on the property fall into four main categories; 1) pyrite-bearing quartz vein/stockwork systems, 2) massive pyrite veins, 3) disseminated pyrite zones and 4) basemetal veins consisting of galena $+(-)$ sphalerite $+(-)$ chalcopyrite. By far the most abundant are the pyrite-bearing quartz veins which may grade into massive pyrite veins. In width these veins range up to 5 m and can be traced for over 100 m . Consistently these veins
strike south to southeasterly and are steeply dipping. Arsenic and silver are generally significantly enriched in these veins, especially those having the highest pyrite content. In appearance the quartz veins are brecciated, sometimes vuggy and are often dark-grey to black in colour. They are also very similar to other mesothermal vein systems in the Stewart District which contain appreciable gold values. The abundance of these veins is striking in that over large portions (500 by 500 m ) of the property these veins occur at a frequency of one every ten meters. These veins are also responsible for many of the larger gossans seen on the property.

The base metal-bearing veins (type 4), contain some very high lead, zinc, copper and silver values. Individual assays range up to $65.60 \%$ lead, $15.92 \%$ zinc, $5.84 \%$ copper and $51.36 \mathrm{oz} / \mathrm{ton}$ silver. Unfortunately the veins which host these and the other high assay values tend to be relatively narrow. To date seven distinct areas have been identified which contain these base-metal veins.

Further work is recommended on the property. Since much of the property has not been covered additional prospecting is required. In particular the western end of the Barite - 4 and the eastern portion of the Von - 2 Claims. Large gossans are visible at quite a distance on both these claims. In addition the nunataks of the Von - 3 claim also host conspicuous gossans. The upper reaches of cullen creek should also be prospected since a major fault is thought to be present. The cost of this additional work should be in the order of $\$ 15,000$. Trenching could also be carried out on some of the base-metal bearing veins such as the MG - 1 and MG - 2 areas. These vein systems contain very significant base metal values, and are largely covered by overburden.
 November 29, 1991.

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## A. 1 ROCK SAMPLES <br> Depending upon the circumstances three different types of rock samples were collected; 1) grab, 2) chip, and 3)

 channel.The use of grab samples was to achieve an approximation as to what sort of values a particular type of mineralization could produce. In general this type of sample consisted of one to ten representative pieces which totalled 0.5 to 2.0 kg in weight. Often this type of sample contained weathered surfaces which were not totally removed.

Chip samples were commonly taken across the strike of mineralized structures. Samples of this sort generally consist of at least five pieces of rock, all roughly the same size, which are representative of the interval being sampled. In addition the weathered surfaces have in most cases been removed.

The channel samples were always taken in a straight line, perpendicular to the strike of the mineralization, with each piece of rock being roughly the same size. In addition the weathered surfaces were always removed, and particular care was taken to ensure that the sampling was representative of the mineralization.

Upon collection the samples were placed in heavy plastic bags and shipped to Eco-Tech Laboratolries Ltd. of 10041 East Trans Canada Highway, Kamloops, B. C.

The samples were first crushed top minus 10 mesh using jaw and cone crushers. Then 250 grams of the minus 10 mesh material was pulverized to minus 140 mesh using a ring pulverizer. For the gold analysis a 10.0 gram portion of the minus 140 mesh material was used. After concentrating the gold through standard fire assay methods, the resulting bead was then dissolved in aquavegia ( 2 - 1 HCl - HNO3) for 2 hours at 95 degrees C. The resulting solution was then analysed by atomic absorption. The analytical results were then compared to prepared standards for the determination of the absolute amounts.

For the determination of the remaining trace and major elements Inductivity Coupled Argon Plasma (ICD) was used. In this procedure a 1.000 gram portion of the minus 140 mesh material is digested with aqua-vegia (3-2-1 HCl - HNO3 - HF) for 2 hours at 95 degrees $c$ and made up to a volume of 20 mls . The resulting solution was then analyzed using Inductivity Coupled Argon Plasma. Again the absolute amounts were determined by comparing the analytical results to those of prepared standards.

A number of the samples (40) produced values for Ag, $\mathrm{Cu}, \mathrm{Zn}$ or Pb that were above the limits of reliability for ICP. It was decided to have these samples assayed using standard assay methods. From the minus 140 mesh material 2 grams of material was


#### Abstract

dissolved in aqua-vegia for 90 minutes at 95 degrees $C$. The resulting solution was then made up to a volume of 200 mls with distilled water and analyzed using atomic absorption. Background corrections were made for Ag and Pb and the analytical results were then compared to those of prepared standards for the determination of the absolute amounts.


## A-2 STREAM SEDIMENT SAMPLES

Each of the stream sediment samples were collected from the active portions of the channels at a minimum of four different locations. The samples were also taken from the lower energy portions of the streams to ensure as much consistency as possible between the different samples.

Upon collection the samples were placed in highstrength Kraft paper envelopes and field dried for approximately one week. They were then sent to Eco-Tech Laboratories Ltd. of 10041 East Trans Canada Highway, Kamloops, B. C., for analysis.

At Eco-Tech Laboratories Ltd. the samples were dried overnight, then sieved to minus 80 mesh. For the gold and, ICP analysis of the major and trace elements 10.00 and 1.000 gram portions of the minus 80 mesh material was analysed in the same manner as the rock samples. For several samples there was insufficient minus 80 mesh material. In these cases minus 35 and 20 mesh size material was used.

## A-3 SOIL AND TALUS SAMPLES

In a number of cases soil and/or talus samples were collected to gain an appreciation of the geochemical response upslope from some known mineralization. For the soil samples approximately 1.0 kg of fine-grained material was collected from either the $B$ or $C$ horizons, whereas the talus samples consisted of representative fine-grained material collected from a number of sites within a 10 m area.

Upon collection the samples were placed in kraft high-strength paper envelopes and field dried for one week before being sent to Eco-Tech Laboratories of Kamloops. At Eco-Tech the samples were then prepared and analyzed in the same manner as the stream sediment samples.

$$
\begin{array}{llllllllll}
\mathbf{A} & \mathbf{P} & \mathbf{P} & \mathbf{E} & \mathrm{N} & \mathbf{D} & \mathbf{I} & \mathbf{X} & & \mathbf{B}
\end{array}
$$

## DESCRIPTION OF ROCK SAMPLES

## SUBMITTED FOR ANALYSIS AND ASSAY

## DESCRIPTION OF ROCK SAMPLES SUBMITTED FOR ANALYSIS AND ASSAY

| SAMPLE | LOCATION | DESCRIPTION |
| :---: | :---: | :---: |
| 91 BR-402A | Barite - 1 | Chip sample of a 5-20cm wide quartz pyrite vein (135/90) 5-30\% coarse-grained pyrite, minor hematite. |
| $91 \mathrm{BR}-402 \mathrm{~B}$ | at 91-BR-402 | Grab sample of a very dark green mafic volcanic. |
| 91 BR-402C | 15 m southeast of $91 \mathrm{BR}-402 \mathrm{~A}$ | Grab sample of a $25-30 \mathrm{~cm}$ wide quartz-pyrite vein, $30 \%$ coarsegrained clotty pyrite. |
| 91 BR-402D | 10m east of | Chip sample from a 20 cm wide quartz-pyrite vein (135/90), $20 \%$ coarse-grained pyrite, clotty. |
| 91 BR-403 | Barite - 1 | Grab sample of an irregular pyrite bearing silicified zone, ( $140 / 90$ ), 1.0 m wide, 1 - $5 \%$ pyrite in coarse clots. |
| 91 BR 404 | 25 m southeast of 91 BR-403 | Grab sample of a dacite breccia, light grey-green, $50 \%$ subangular clasts of dark green mafic volcanic, jointing 135/90. |
| 91 BR 405 | Barite - 1 | Grab sample of a gossan area, 4 $\times 5 \mathrm{~m}$, irregular veins and clots of pyrite (1-7\%). Host rock is bleached and silicified, originally a dark green mafic volcanic flow. |
| 91 BR 406 | Barite - 1 | Grab sample from an irregular gossan $20 \times 20 \mathrm{~m}$ ) silicified mafic volcanic, 1\% coarsegrained pyrite, some red hematite clots, host rock is a medium-dark green amygdaloidal mafic volcanic. |
| 91 BR 407 | 25 m south of 91 BR-406 | Grab sample of a green mafic volcanic amygdaloidal, trace to $1 \%$ clotty pyrite, relatively unaltered. |

91 BR 409 Barite - 1

91 B4 $410 \quad$ Barite - 1

91 BR 41

9

91 BR 414
Barite - 1

91 BR 415
Barite - 1

91 BR 416A Barite - 1

91 BR 416B 20 m below
91 BR 416A

Grab sample of a series of 3 10 cm wide quartz veins parallel to the creek $(154 / 90)$ over a width of 1.0 m , fault zone, transcurrent movement, host rock is a mafic volcanic.

Grab sample of a light-green mafic volcanic, possible dyke (60/90), 2.0 m wide, 2 - $4 \%$ coarse-grained disseminated pyrite.

Grab sample from a large zone of moderately silicified maroon mafic volcanic ( 20 by 30 m ), angular breccia clasts up to 10 cm in diameter, 1 - $10 \%$ coarse pyrite cubes, zones of $10 \%$ pyrite up to 1.0 by 1.0 m .

Grab sample from a large rusty zone ( 50 by 50 m ) which contains patches of irregular pyrite veins $2-3 \mathrm{~cm}$ wide orientated at 138/90, minor alteration Fo 91/38N.

Grab sample from a large (60 by 60 m ) light brown rusty zone which contains up to $3 \%$ large pyrite cubes, host rock is a silicified (light grey) maroon mafic volcanic breccia, pyrite cubes are up to 2 cm in diameter.

Grab sample from the same zone as 91 BR - 414, trace to $1 \%$ pyrite in coarse cubes, host rock is silicified.

Chip sample over 70 cm of a bleached light grey-green altered mafic volcanic, 0 to 15\% pyrite, trace disseminated galena, pyrite is coarsegrained, vein orientated at 170/90.

Channel sample over 50 cm , heavily silicified and bleached mafic volcanic which contains $50 \%$ coarse-grained pyrite.

| 91 BR | 416 C | Adjacent to 91 BR 416D to the the east | Channel sample 1.0 m wide silicified mafic volcanic, 5 20\% coarse-grained pyrite, mostly as irregular veins. |
| :---: | :---: | :---: | :---: |
| 91 BR | 416 D | In between <br> 91 BR 416A and <br> 91 BR 416C | Channel sample 70 cm wide which contains $50 \%$ pyrite mostly in veins subparallel to the jointing. |
| 91 BR | 416 E | 2.0m below <br> 91 BR 416D to <br> the south | Channel sample 1.0 m wide massive pyrite with $30 \%$ silicified mafic volcanic, relict breccia clasts. |
| 91 BR | 416 F | ```25m north of 91 BR 416A along strike``` | Channel sample 1.0 m wide, 15 $20 \%$ coarse-grained pyrite hosted by a silicified mafic volcanic. |
| 91 BR | 416 G | Immediately to the east of 91 BR 416 F | Channel sample 1.0 m wide of a silicified and clay altered mafic volcanic which contains 5 - 15\% pyrite. |
| 91 BR | 417 | Barite - 1 | Chip sample 35 cm wide across a series of irregular pyrite veins orientated at 10/90, host rock is bleached. |
| 91 BR | 418 | Barite - 1 | Chip sample over 20 cm series of pyrite veins (150/90) overall $50 \%$ pyrite, host rock is a mafic volcanic that has been silicified. |
| 91 BR | 419A | Barite - 1 | Channel sample 1.0 m wide of a silicified mafic volcanic, minor pyrite veins, $1-3 \mathrm{~cm}$ wide, overall 2 - $3 \%$ pyrite. |
| 91 BR | 419B | Barite - 1 | Channel sample of a 10 cm wide pyrite vein (162/90), 90\% pyrite, pronounced jointing at 138/90. |
| 91 BR | 420 | Barite - 1 | Chip sample from an irregular pod of massive pyrite 70 cm wide, host rock is a silicified mafic volcanic breccia, green clasts up to 10 cm in diameter. |
| 91 BR | 421 | Barite - 1 | Chip sample over a 50 cm wide irregular clay altered zone, (140/90), $10 \%$ pyrite, some |

91 BR 422 Barite - 1

91 Br $423 \quad$ Barite - 1

91 BR 424 Barite - 1

91 BR 425A Barite - 1

91 BR $425 B$

91 BR 426

91 BR 427

91 BR 428

91 BR 429

10 m to the south along strike from 91 BR 425A
1.5 m due west of 91 BR 425B
1.5 m south of 91 BR 426

40 m from 91 BR 429 on a bearing of 340 degrees

50 m south of 91 BR 425B
veins up to 2 cm wide.
Chip sample $10-20 \mathrm{~cm}$ wide of coarse-grained pyrite veins (175/90), 30\% pyrite, host rock is a green mafic volcanic breccia which is silicified and clay altered.

Grab samples from a 2.0 m zone of pyrite veins (1-4cm wide), $10 \%$ pyrite, host rock is a green mafic volcanic agglomerate (clasts rounded).

Grab sample from a large weakly developed gossan which contains a 5 cm wide vuggy quartz vein surrounded by 50 cm of altered rock containing irregular pyrite veins.

Channel sample 1.0 m wide of a fault zone trending 175/90, conglomerate (Fo=horz) and mafic breccia $40 \%$ fine-grained pyrite, $20 \%$ quartz, remainder clay altered rock clasts.

Channel sample 50 cm wide, same vein system as 91 BR 425A.

Grab sample of a 5 cm wide pyrite vein (170/90) host rock is a mafic breccia.

Chip sample over 40 cm irregular series of pyrite veins, $10 \%$ pyrite, host rock is an altered mafic volcanic breccia.

Chip sample over 50 cm of a bleached mafic volcanic which contains $5 \%$ irregular clots of pyrite, minor dark green veins (chlorite).

Grab sample from a 10 cm wide quartz-pyrite vein (160/90), $50 \%$ pyrite, remainder clay altered mafic volcanic clasts.

| 91 BR 430 | 25 cm from <br> 91 BR 429 on a bearing of 300 degrees | Grab sample from a large pyrite bearing zone ( 15 m wide) which contains $10 \%$ pyrite overall, central zone $(20 \mathrm{~cm})$ bearing 160/90 contains $90 \%$ quartz, $7 \%$ pyrite and $3 \%$ tourmaline. |
| :---: | :---: | :---: |
| 91 BR 431A | Barite - 1 | Chip sample over a 1.0 m area of relatively unaltered mafic volcanic with 1 - $3 \%$ pyrite in irregular veins. |
| 91 BR 431B | 10 m due west of 91 BR 431A | Chip sample over a 1 by 0.5 m area of a quartz-pyrite vein system with altered mafic volcanic $10 \%$ pyrite. |
| 91 BR 432 | Barite - 1 | Chip sample from a 50 cm wide quartz-pyrite vein (170/90), $35 \%$ pyrite, $5 \%$ red hematite, host rock is a mafic volcanic breccia. |
| 91 BR 433 | Barite - 1 | Chip sample from a 50 cm wide quartz-pyrite vein (160/90), 25\% coarse-grained pyrite, host rock is a sericite altered mafic volcanic breccia, subrounded clasts up to 10 cm wide. |
| 91 BR 434 | Barite - 1 | Chip sample from a 50 cm wide quartz-pyrite vein system (111185/90), 40\% coarse-grained pyrite. |
| 91 BR 435 | at 91 MR 207 | Large quartz-pyrite vein system 3 m wide, recently blasted, (177/90) host rock is a green mafic volcanic breccia. |
| 91 BR 435A | west side of vein | Chip sample 50 cm wide, $5-10 \%$ pyrite clotty and disseminated, increasing to $20 \%$ towards 91 BR 435B. |
| 91 BR 435B | immediately to the east of <br> 91 BR 435A | Chip sample 50 cm wide, $25 \%$ pyrite disseminated and clotty, remainder quartz, note some quartz clasts which have been brecciated. |
| $91 \mathrm{BR} \mathrm{435C}$ | immediately to the east of | Chip sample 50 cm wide, same as 91 BR 435B. |

91 BR 435D

91 BR 435 E

91 BR 436

91 BR 437

91 BR 438

91 BR 439

91 BR 440

91 BR 440A Centre of trench

91 BR 440

91 BR 440C

91 BR 441
immediately to the east of 91 BR 435C
immediately to the east of 91 BR 435 D

Barite - 1

25 cm from 91 BR436 on a bearing of 63 degrees

35 m due south of 91 BR 437

10m due south of 91 BR 438

Barite 1
immediately to the north of 91 BR 440A
immediately to the north of 91 BR 440 B

Barite - 1

Chip sample 50 cm wide, same as 91 BR 435B.

Chip sample 50 cm wide, same as 91 BR 435B.

Chip sample 50 cm wide over a quartz-pyrite vein system, 25\% pyrite mostly disseminated.

Channel sample, 20 cm wide of a quartz-pyrite vein ( $70 / 65 \mathrm{E}$ ), $25 \%$ clotty pyrite, remainder quartz.

Chip sample 50 cm wide over a vuggy quartz vein system (100/90), host rock is a green mafic volcanic breccia.

Grab sample of a series of irregular quartz-pyrite veins hosted by a mafic volcanic breccia, green, clasts 5-10cm.

Large old trench, 5 m long, red spray paint.

Channel sample 50 cm wide, moderately silicified, $5 \%$ pyrite concentrated in subparallel veins (150/785) generally the pyrite veins are $1-3 \mathrm{~cm}$ wide.

Channel sample 70 cm wide, several 10 cm wide quartz-pyrite veins, remainder an altered coarse-grained mafic volcanic breccia, vein orientated at 165/80E.

Channel sample 1.0 m wide, dominately brecciated quartz, 5\% clotty pyrite.

Grab sample from 20 cm wide quartz vein which contains $5 \%$ clotty pyrite.

| 91 BR 442 | Barite - 1 | Grab sample from a green mafic volcanic, which contains irregular zones containing 2 $7 \%$ pyrite veins, enveloped by altered mafic volcanic. |
| :---: | :---: | :---: |
| 91 BR 443 | Barite - 1 | Grab sample from a 10 to 20 cm wide quartz-pyrite vein, hosted by a green mafic volcanic breccia. |
| 91 BR 444 | Barite - 1 | Grab sample of a mafic volcanic breccia which is cross-cut by a series of irregular pyrite veins and large pyrite clots, minor clay alteration. |
| 91 BR 445A | Barite - 1 | Grab sample from an irregular quartz vein syste, rusty boxwork, 10 cm wide, host rock is a clay altered mafic volcanic breccia, clast colmposition monolithic. |
| 91 BR 445B | Barite - 1 | Chip sample from a 20 cm wide quartz-pyrite vein or pod, 1 $3 \%$ pyrite, quartz vein stockwork. |
| 91 BR 446 | Barite - 1 | Chip sample across a 30 cm wide quartz-pyrite-hematite pod or vein, $20 \%$ clotty pyrite. |
| 91 BR 447 | Barite - 1 | Chip sample from a 15 cm wide quartz-pyrite vein (65/44SE), $10 \%$ clotty pyrite, host rock is a green mafic, volcanic breccia, monolithic which has been altered for 20 cm . |
| 91 BR 448 | Barite - 1 | Large area 25 by 30 cm of light brown gossan, heavily silicified, numerous quartz veins 1 - 3 cm wide boxworks suggesting the presence of pyrite cubes, grab sample. |
| 91 BR 449 | 25 m west of 91 BR 448 | Grab sample of a silicified mafic volcanic breccia, 5\% clotty pyrite gossan covers a 10 by 10 m area. |

30 m due west of 91 BR 442

20 m from 91 BR 450 on a bearing 305 degrees

Barite - 1, 15m southeast of 91 BR 451

Barite - 1, 35m southeast of 91 BR 452

Barite - 1

91 BR 455 Barite - 1

91 BR 456
Barite - 1

91 BR 457A Barite - 1

91 BR 457B

91 BR 458

Barite - 1, 10m along strike from 91 BR 457 A

Barite - 2

Grab sample from a silicified zone containing 5\% clotty pyrite.

Chip sample from a 20 cm wide pyrite zone ( $7 \%$ clotty pyrite) orientated at $71 / 545$, host rock is a mafic volcanic, relatively unaltered.

Grab sample of a 30 cm wide quartz-pyrite vein, $5-10 \%$ clotty and veined pyrite.

Grab sample from a silicified mafic volcanic, 1 - $2 \%$ clotty pyrite pyrite, $1 \%$ sphalerite along fracture planes also.

Grab sample of a 4 cm wide pyrite vein $(58 / 90)$, $60 \%$ pyrite remainder quartz and clay alteration minerals.

Chip sample 20 cm wide across a pyrite vein (40\% coarse-grained pyrite) orientated at $165 / 90$, enclosed by clay alteration minerals.

Chip sample from an irregular pyrite-quartz zone 1.0 m wide (130/90) brecciated host rock a mafic volcanic flow.

Grab sample from a small pyrite bearing zone, 2 - $3 \%$ pyrite disseminated and in veins, minor malachite and azurite staining on the fractures.

Grab sample from a small shar zone 10 cm wide (119/525), 10\% pyrite.

Large light brown gossan 25 m wide, which contains a 2 cm wide pyrite vein ( $88 / 33 \mathrm{~N}$ ) surrounded by a 1.0 m wide silicified zone which contains trace to $1 \%$ sphalerite along the fracture surfaces.

| 91 BR | 459A | Barite - 2, 25 m downhill of 91 BR 458 | Grab sample of a galena vein 3 cm wide, upper vein (170/90). |
| :---: | :---: | :---: | :---: |
| 91 BR | 459 B | Barite - 2, immediately below 91 BR 459A | Chip sample 20 cm wide of two small galena-calcite veins (170/90) which are separated by 15 cm . |
| 91 BR | 460 | Barite - 2 | Grab sample from a 20 cm wide pyrite vein (94/90), $30 \%$ pyrite hosted by a silicified and brecciated mafic volcanic. |
| 91 BR | 461 | Barite - 2 | Grab sample from a 10 to 20 cm wide shear zone (90/88S) consisting of brecciated rock fragments with $5 \%$ sphalerite and $5 \%$ pyrite which are generally concentrated along the fracture surfaces, host rock is a mafic volcanic breccia, green. |
| 91 BR | 462 | Barite - 2 | Grab sample from a 10 cm wide quartz-pyrite vein (43/90) hosted by a heavily silicified mafic volcanic breccia. |
| 91 BR | 463 | Barite - 1 | Talus grab sample of a silicified mafic volcanic breccia, 1 - $3 \%$ pyrite present in irregular clots and veins. |
| 91 BR | 464 | Von - 2 | Large quartz-pyrite zone (145/90) quartz generally black, host rock is a dacite, light-grey with $2 \%$ hornblende laths, quartz-pyrite zone is 21/2m wide. |
| 91 BR | 464 A | Von - 2 | Chip sample 50 cm wide, darkgrey quartz, possibly a silicified dacite, $1-7 \%$ coarse disseminated pyrite. |
| 91 BR | 464B | immediately to the south of 91 BR 464 A | Chip sample 50 cm wide, same as 90 BR 464 A . |
| 91 BR | 464C | immediately to the north of 91 BR 464A | Chip sample 70 cm wide, same as 91 BR 464 A . |


| $91 \mathrm{BR} \mathrm{464D}$ | Von - 2 | Chip sample l. Om wide, light to <br> medium grey, |
| :--- | :--- | :--- |
| disseminated pyrite. |  |  |


|  |  |  | in vicinity. |
| :---: | :---: | :---: | :---: |
| 91 BR | 469 | 20 m west of <br> 91 BR 468 | Grab sample of a $20-40 \mathrm{~cm}$ wide quartz-calcite vein (167/87E) containing $5 \%$ clotty pyrite, white staining present on rocks. |
| 91 BR | 470 | 15 m east of 91 BR 469 | Grab sample of a 10 cm wide quartz-calcite-pyrite vein, some brecciated clasts of mafic volcanic, $15 \%$ pyrite overall, but up to $50 \%$ in small intervals, vein orientated at $62 / 80 \mathrm{~N}$. |
| 91 BR | 471 | Von - 2 | Mafic volcanic which contains a series of irregular quartzpyrite veins over an area of 25 by 25 m , general trend of veins 160/90. |
| 91 BR | 471 A | Von - 2 | Chip sample over 30 cm , $10 \%$ pyrite as irregular veins, 2 5 cm wide. |
| 91 BR | 471B | 5 m to the east of 91 BR 471A | Chip sample, 30 cm wide, same as 91 BR 471A. |
| 91 BR | 472 | 10 m east of 91 BR 471 | Chip sample over a 10 cm wide quartz-calcite-pyrite vein which appears to occupy a fault zone $(50 / 50 \mathrm{SE}), 10 \%$ fine grained pyrite, $60 \%$ quartz and $30 \%$ calcite. |
| 91 B | 473 | Von - 2 | Very extensive gossan 75 by 100 m , numerous quartz-pyrite veins, host rock is mafic volcanic. |
| 91 BR | 473A | Von - 2 | Chip sample 40 cm wide of a quartz-pyrite vein system, $10 \%$ pyrite, some of the quartz is ribboned. |
| 91 BR | 473 B | $\begin{aligned} & 3 \mathrm{~m} \text { north of } \\ & 91 \text { BR } 473 \mathrm{~A} \end{aligned}$ | Chip sample 50 cm wide, silicified mafic volcanic, 5\% coarse-grained pyrite, $25 \%$ quartz veins. |
| 91 BR | 473 C | at 91 BR 473A | Chip sample 40 cm wide, two quartz-pyrite veins, $10-20 \mathrm{~cm}$ wide, $50 \%$ pyrite. |



91 B $475 \quad$ Von -2

91 BR 475 A

91 BR 475B

91 BR 476 Von - 2

91 BR 477

91 BR 478

91 B 479

31 BR 479A

91 BR 479B

91 BR 479C

91 BR 479D
north end of vein system
1.0m south of 91 BR 479A
1.0 m south of 91 BR 479B
1.0m south of 91 BR 479C
intense quartz-calcite veining, ribboned.

Rusty outcrop, 10 by 10 m , host rock is a dacite, plagioclase phenocrysts.

Chip sample over 30 cm , quartzpyrite stockwork, 5\% irregular pyrite veins, $1-2 \mathrm{~m}$ wide, host rock is a silicified dacite.

Chip sample 30 cm wide, $5 \%$ irregular pyrite veins, remainder silicified dacite.

Grab sample from a gossan 10 by 10 m , silicified dacite, containing 5-7\% irregular pyrite veins.

Grab sample from a series of quartz-pyrite veins, 1 - 4 cm wide over a 2 by 5 m area, $10 \%$ pyrite veins.

Grab sample from a small gossan ( $2 \times 4 \mathrm{~m}$ ), 3 号 pyrite veins.

Large vein of massive pyritequartz 6.0 m wide (155/90) north end appears to be truncated by a fault (120/90), previously sampled as \#4523 and \#4522, host rock is a silicified dacite, pyrite veins generally 1 - 4 cm wide, brecciated silicified dacite clasts also present.

Chip sample 1.0 m wide, $1-5 \%$ pyrite in veins generally trending at $170 / 90$, somewhat irregular.

Chip sample l.0m wide, same as 91 BR 479A.

Chip sample 1.0 m wide, same as 91 BR 479A.

Chip sample 1.0 m wide, same as 91 BR 479 A .

| 91 BR | 479 E | $\begin{aligned} & 1.0 \mathrm{~m} \text { south of } \\ & 91 \mathrm{BR} 479 \mathrm{D} \end{aligned}$ | Chip sample 1.0 m wide, same as 91 BR 479A. |
| :---: | :---: | :---: | :---: |
| 91 BR | 479 F | $\begin{aligned} & \text { 1.0m south of } \\ & 91 \mathrm{BR} 479 \mathrm{E} \end{aligned}$ | Chip sample 1.0 m wide, same as 91 BR 479A. |
| 91 BR | 479G | $\begin{aligned} & 1.0 \mathrm{~m} \text { south of } \\ & 91 \mathrm{BR} 479 \mathrm{~F} \end{aligned}$ | Chip sample 1.0 m wide, same as 91 BR 479A. |
| 91 BR | 479H | 10 m east of <br> 91 BR 479G | Grab sample of a massive pyrite vein 30 cm wide, $80 \%$ pyrite. |
| 91 BR | 480 | Von - 2 | Chip sample 50 cm wide, of a silicified dacite, 1 - $5 \%$ pyrite in irregular veins (143/90). |
| 91 BR | 481 | Von - 2 | Chip sample 40 cm wide of a series of irregular pyrite veins hosted by a silicified dacite, 2 - 4\% pyrite. |
| 91 BR | 482 | Von - 2 | Grab sample from a 30 x 30 m gossan consisting of silicified dacite, 2 - 4\% pyrite veins 24 cm wide. |
| 91 BR | 483 | Von - 2 | Chip sample 1.0 m wide from a large area of silicified dacite (40 x 40m), 1 - 3\% pyrite. |
| 91 B | 484 | Von - 2 | Large area of silicified dacite at least 30 m wide, 1 - $7 \%$ pyrite veins $1-4 \mathrm{~cm}$ wide. |
| 91 BR | 484A |  | Grab sample random quartzpyrite veins 1 - $3 \%$ pyrite in veins $1-2 \mathrm{~cm}$ wide. |
| 91 BR | 484 B |  | Chip sample 1.0 m wide of a silicified dacite which contains $2-5 \%$ pyrite. |
| 91 BR | 485 | Von - 2 | Chip sample 30 cm wide of a silicified dacite which contains 3-5\% fine-grained pyrite in veins. |
| 91 BR | 486 | Von - 2 | Chip sample 30 cm wide of a silicified dacite which contains 1 - $3 \%$ pyrite veins. |
| 91 BR | 487 | Von - 2 | Chip sample 35 cm wide over a quartz-pyrite stockwork zone |


| 91 | BR | 488 | Von - 2 |
| :---: | :---: | :---: | :---: |
| 91 | BR | 488A | Von - 2 |
| 91 | BR | 488B | 15 m north of 91 BR 488A |
| 91 | BR | 489 | Von - 2 |
| 91 | BR | 491 | Von - 2 |
| 91 | BR | 492 | Von - 2 |
| 91 | BR | 492A | Von - 2 |
| 91 | BR | 492B | 3m east of $91 \text { BR 492B }$ |
| 91 | BR | 492C | 4 m east of 912 BR 492A |
| 91 | BR | 493 | Von - 2 |

91 BR 493

91 BR 494
Von - 2

91 BR 495 Von - 2

91 BR 496 Von - 2

91 BR 497

91 BR 498
Barite - 1

91 BR 499
Barite - 1

91 B 500
Barite - 1

91 BR 500A Barite - 1

91 BR 500B 5 m west of 91 BR 500A

91 BR $500 \mathrm{C} \quad 15 \mathrm{~m}$ east of 91 BR 500B

91 BR 501
Barite - 1

91 BR 502
Barite - 1
pyrite vein 20 cm wide, host rock is a mafic volcanic breccia.

Grab sample from a series of coarse-grained pyrite veins (150/65W), host rock is a silicified mafic breccia.

Grab sample from a collection of float, dominately silicified dacite, 1 - $3 \%$ pyrite, mostly disseminated.

Chip sample 30 cm wide of a silicified dacite, trace pyrite, dark grey to black host, protolith a mafic volcanic breccia, area of gossan 20 by 20 m .

Chip sample 20 cm wide, dark grey to black silicified dacite, trace disseminated pyrite, gossan area $4 \times 5 \mathrm{~m}$.

Large area of silicified dacite 30 m wide, trending 120 degrees.

Chip sample 30 cm wide, black silicified dacite $3-7 \%$ pyrite in irregular veins.

Chip sample 1.0 m wide, silicified dacite, black to dark grey, $1-4 \%$ clotty and disseminated pyrite.

Chip sample 1.0 m wide of a silicified dacite, trace pyrite.

Chip sample 35 cm wide of a silicified zone containing 5 $10 \%$ pyrite veins trending 120/90, silicified zone is roughly 3 m wide.

Grab sample of a silicified dacite which contains an irregular zone of 1.0 cm wide pyrite veins.

Local float, rusty hematite


91 MR 225
Barite - 4

91 MR 226
Barite - 4

91 MR 227
Barite - 4

91 MR 228
Barite - 4

91 MR 229
Barite - 4

91 MR 232
Barite - 4

91 MR 236 Barite - 1

91 MR 240
Barite - 4
strike dip, 90 - $100 \%$ galena, 2 m west of MR 223, same vicinity.

Random grab across 15 cm wide face, quartz-pyrite 0 - 2\%, chalcopyrite $0-4 \%$, galena 5\%. Sample taken 1 m west along strike of same vein, 236/39.

Random grab across face 15 cm wide. quartz-pyrite-galena, 2 m west of MR 225, heavy shear action quartz is infilling shear zones running in all directions.

Random grab, 7 cm wide, massive pyrite, 90 - 100\% coarsegrained shear zone infilled by quartz breccia, 154/80.

Random grab across 35 cm wide face, quartz, barite, galena, pyrite, chalcopyrite, breccia shear zone 154/80, host rock conglomerate.

Random grab 5 m along strike of same vein/shear pyrite 0-2\%, chalcopyrite $0-2 \%$, barite $0-2 \%$.

Random grab across face of 2 m wide shear zone $360 / 152$, quartz-pyrite $5-10 \%$, barite $2 \%$, galena $2 \%$. Large shear zone of very altered tuff breccia, heavy limonite, also took talus fines MT230; 231, same location.

Random grab across face of 2 m wide shear zone, samples taken at lower end of shear, MT 230, 231, MR 232, quartz-barite 5\%, pyrite $25 \%$ galena $2 \%$, chalcopyrite $2 \%$, also took talus fine MT 234-235 in this location, host highly altered green tuff.

Random grab across width of vein/shear $35-70 \mathrm{~cm}$ wide, in this sample area vein is about

91 MR 243

91 MR 246
Barite - 4

91 MR 24
Barite - 4

91 MR 249 Barite - 4

91 MR 251
Barite - 4

91 MR 252
Barite - 4

91 MR 253 Barite - 4

91 MR 254
Barite - 4

30 cm wide, 290/84. Quartzpyrite $15 \%$, arsenopyrite $1 \%$, hemaite $5 \%$, heavy shearing in this area, also same location as MT 241.

Felsic dyke system 30 cm wide, 136/86. Pyrite 5\%, very rusty, also same location as MT 242.

Random grab of shear zone 3 m wide, pyrite 5\%, heavy limonite and rusting, also location of MT 244-245.

1m wide random grab across shear zone, pyrite $15 \%$, malachite 5\%, galena $2 \%$; quartz altered shear zone, host altered mafic tuff, also location of MT 247.

Random grab of quartz shear, 276/60, 2 m wide, mostly covered in broken rock; quartz-pyrite $20 \%$, malachite $15 \%$, galena 20\%. This shear is very extensive, samples along strike for 125 m . Host is fine-grained mafic tuff, same location as MT 250.

2 - 3 m wide shear zone $276 / 60$, quartz infill, random grab, pyrite $20 \%$, malachite $10 \%$, galena $10 \%$, sample 2 m west of 249, mt 250.

1 m wide exposed 25 m along strike of some shear, random grab, galena $5 \%$, pyrite $10 \%$, malachite $3 \%$, quartz $50 \%$, host altered greenish-white tuff.

1-1/2m wide very altered vuggy quartz shear, sample taken 20 m along strike of shear zone, pyrite $10 \%$, malachite $5 \%$, quartz very rotten limonite texture.

Quartz shear zone $1-1 / 2 m$ wide, sample is random grab along 2 m length of same shear zone as samples 248 - 254. This shear

91 MR 258

91 MR 260
Barite - 1

91 MR 266
Barite - 1

Barite - 1

91 MR 269 Barite - 1

91 MR 270A Barite - 1

91 MR 270B

91 MR 270C Barite - 1

91 MR 270D Barite - 1

91 MR 270E Barite - 1
is 125 m long at this location from first sample. Visible evidence of continuous strike length is apparent. Very vuggy. Galena 5\%, pyrite 20\%, malachite 5\%.

Grab sample from a shear zone infilled with chert, quartz, minor pyrite pods and veins.
$1 / 2 \mathrm{~m}$ wide shear zone random grab across width, quartz altered shear, 30\% pyrite.

10-20 in. wide quartz altered chert, $278 / 58$, chip sample across face width, blocky cubes of pyrite $20 \%$, fine disseminated pyrite $10 \%$.

Grab sample from a large quartz vein, $30-60 \mathrm{~cm}$ wide, $30 \%$ pyrite in blocky cubes and as fine disseminations.

1/2m wide quartz altered chert 270/40, sample taken across face width, pyrite 30\%, chalcopyrite $2 \%$, galena $2 \%$.

7 - 15 cm wide vein, $314 / 90$, chip across face, chalcopyrite $10 \%$, pyrite $30 \%$, sphalerite $20 \%$, galena $10 \%$, quartz remainder.

25 cm wide vein, $314 / 90$, chalcopyrite $30 \%$, galena $10 \%$, sphalerite $20 \%$, pyrite $10 \%$.

15 cm wide vein $314 / 90$, pyrite $20 \%$, galena $10 \%$, sphalerite $30 \%$, quartz ship across width of vein.

15 cm wide vein $314 / 90$, chip across face width, sphalorite $50 \%$, pyrite $10 \%$, chalcopyrite $20 \%$.

15 cm wide vein same strike, chip across face width, sphalorite $70 \%$, pyrite $10 \%$,

|  | MR | 271 | Barite - 1 |
| :---: | :---: | :---: | :---: |
|  | MR | 278 | Barite - 1 |
| 91 | MR | 283 | Von - 3 |
| 91 | MR | 287 | Von - 3 |
| 91 | MR | 288 | Von - 3 |
| 91 | MR | 289 | Von - 2 |
| 91 | MR | 290 | Von - 2 |
| 91 | MR | 292 | Von - 2 |
| 91 | MR | 294 | Von - 2 |
| 91 | MR | 295 | Von - 2 |
| 91 | MR | 296 | Von - 2 |
| 91 | MR | 297 | Von - 2 |
| 91 | MR | 300 | Von - 2 |

chalcopyrite 2\%.
35 cm wide shear zone $270 / 50$, sample across face, pyrite $10 \%$, galena $2 \%$, chalcopyrite $2 \%$.

10 cm wide shear zone $272 / 58$, chip across face, pyrite 5\%, galena $2 \%$, chalcopyrite $2 \%$.

Large shear zone $1-1 / 2 \mathrm{~m}$ wide, 54/72, chip across face, pyrite $20 \%$, chalcopyrite $2 \%$, vuggy quartz.

Large shear $1-1 / 2 \mathrm{~m}$ wide sample, chip across width 15 m down slope of $M R$ 283, pyrite $10 \%$, chalcopyrite 5\%, quartz vuggy.

Shear zone 1 m wide sample, chip across width 5 m down slope from MR 287, pyrite 5\%, chalcopyrite $2 \%$, vuggy quartz.

Quartz tourmaline possible altered sediments, pyrite 5\%, chalcopyrite 0 - 1\%.

Quartz flow very vuggy, random grab, pyrite 0 - $5 \%$, host siliceous cherty matrix.

Large gossan, pyrite $15-20 \%$, host dacite matrix, also plagioclase feldspar.

Flat lying shear or fault 1 m wide, random grab, pyrite $20 \%$, host very felsic, dacite altered.

Small gossan, very felsic dacite, pyrite $3 \%$.

Ferracite zone, very rusty, heavy iron staining.

Large gossan, heavy staining, dacite porphyry host, pyrite 0 - 5\%.

Large outcrop quartz and possible tourmaline influence,

|  |  |  |  | blocky pyrite 0-2\%. |
| :---: | :---: | :---: | :---: | :---: |
| 91 | MR | 301 | Von - 2 | Dacite porphyry, plagioclase feldspar clasts, minor pyrite 0 - $2 \%$. |
| 91 | MR | 302 | Von - 3 | Large amount of maroon tuff, very rusted surface, pyrite and plagioclase feldspar. |
| 91 | MR | 303 | Von - 3 | Large outcrop of dacite porphyry, pyrite 10 - 20\% throughout most of outcrop. |
| 91 | MR | 304 | Von - 3 | Large outcrop of dacite porphyry, very rusted surface, random grab, pyrite 10 - $20 \%$. |
| 91 | MR | 306 | Von - 3 | Random grab of large outcrop of dacite porphyry, pyrite 0 10\%. |
| 91 | MR | 313 | Von - 3 | Random grab of local float at base of very steep outcrop, pyrite 0 - $10 \%$. |
| 91 | MR | 314 | Von - 2 | ```Quartz altered sediments, possible tourmaline influence, pyrite 0 - 5%.``` |
| 91 | MR | 315 | Von - 2 | Chip sample, vuggy quartz, possible tourmaline influence on altered siltstone, pyrite 0 - $5 \%$. |
| 91 | MR | 316 | Von - 2 | Massive pyrite vein $147 / 70,6 \mathrm{~cm}$ wide host altered siltstone, pyrite $100 \%$. |
| 91 | MR | 317 | Von - 2 | Massive pyrite vein 12 - 15 cm wide chip across width, $170 / 68$, pyrite $100 \%$, host altered siltstone. |
| 91 | MR | 318A | Barite - 1 | Shear zone 15 - 30 cm wide, 50/68E, pyrite 10 - 20\%, also quartz infilling. |
| 91 | MR | 318 B | Barite - 1 | Shear zone $15-24 \mathrm{~cm}$ chip across face, pyrite altered siltstone host. |
| 91 | MR | 319 | Barite - 1 | Pyrite vein, possible quartz tourmaline influence, pyrite 0 |

Barite - 1
91 MR 327 Barite - 1
91 SR 1 Barite -
91 SR 2
Barite - 1
91 SR 3
91 SR 4
91 SR 5
91 SR

Pyrite, quartz tourmaline altered outcrop, heavy surface staining, pyrite $0-10 \%$.

Same location as above.

Shear zone 33 cm wide, same shear as 318A - 318B, very vuggy, pyrite 0 - 5\%, altered siltstone host.

Grab sample of pyritic quartz vein, varying from $0-5 \mathrm{~cm}$ in width, $5 / 90$ discontinuous strike, $S=75 \%$ poddy pyrite. Host rock fine grain, dark green mafic volcanic.

Grab sample 10 cm wide sulphide lens 130/80W. $S=75 \%$ pyrite. Host rock fine grain, dark green mafic volcanic.

Grab sample 25 cm wide sulphide pod. $170 / 20 \mathrm{~W}$ varying and shallow dip. $S=95 \%$ pyrite. Host rock fine grain felsic volcanic.

Grab sample 4 cm wide quartz vein. $130 / 20 \mathrm{~W}$ varying and discontinuous. $S=<5 \%$. Host rock fine grain felsic volcanic.

Grab sample of predominate vein structure approximately . 3m wide. $40 / 30$ SE. $S=<1 \%$ chalcopyrite/sphalerite, predominately along fracture planes infused with quartz. Host rock mafic volcanic.

Grab sample 5 - 10 cm wide from off shoot vein, $140 / 82 \mathrm{SW}, \mathrm{S}=$ $10 \%$ coarse-grained clotty pyrite, silicified and clay altered.

Grab sample of same vein structure as $5 R$ 5, pyrite/quartz vein $20-30 \mathrm{~cm}$
wide, 40/30SE.

| 91 SR | 7 | Barite - 1 <br> 25 m on bearing of <br> 220 degrees from <br> SR 6B | Grab sample, same vein structure as $\operatorname{SR}$ 5/SR 6B. Visible galena $<1 \%$. Host rock mafic volcanic breccia, monolithic dark green clusters up to 1.0 cm in diameter. |
| :---: | :---: | :---: | :---: |
| 91 SR | 7A | Barite - 1 | Chip sample over 50 cm , massive pyrite, $S=50-60 \%$ pyrite, trace galena, remainder quartz. Pyrite is coarse-grained and clotty. |
| 91 SR | 7B | Barite - 1 | Chip sample of footwall, 40 cm wide, $S=1-3 \%$ disseminated pyrite. Predominately gouge material and altered mafic volcanics. |
| 91 SR | 8 | ```Barite - 1 25m from 91 SR 7 along vein structure``` | Grab sample of 10 cm wide offshoot vein, $82 / 52 \mathrm{~S}, \mathrm{~S}=50-$ $60 \%$, remainder quartz. |
| 91 SR | 9 | Barite - 1 | Grab sample 20 cm wide vein, structure 75/55S. $\mathrm{S}=<5 \%$ quartz/clay altered, minor hematite staining. |
| 91 SR | 9 A | Barite - 1 | Grab sample of hanging wall above 91 SR 9. $S=1-2 \%$ pyrite, fine-grained dark-green mafic volcanic. |
| 91 SR | 9B | Barite - 1 | Grab sample same vein structure as $\operatorname{SR}$ 9, 1m at 75 degrees from SR 9, 75/55S. $S=5 \%$, less clay alteration than SR 9. |
| 91 SR | 10 | Barite - 1 | Grab sample 5 cm wide pyrite pod, 140 degrees $W$ discontinuous pyrite pod. $S=$ 75\% massive pyrite, quartz altered host rock dark-green mafic volcanic. |
| 91 SR | 11 | Barite - 1 | Float semi-rounded quartz vein up to 10 cm wide. $\mathrm{S}=<1 \%$ pyrite and up to $5 \%$ galena. Heavily oxidized exterior, minor hematite staining. |

91 SR 1



Barite - 1

Grab sample of $10-20 \mathrm{~cm}$ pyrite vein, 160 degrees/vertical varying. $S=5-10 \%$ heavily iron stained host rock finegrained dark-green mafic volcanic.

Float, very coarse with origin probably local but not located. $S=<1 \%$ finely disseminated pyrite, minor chalcopyrite, quartz veinlets less than 1 cm wide with associated pyrite. Host rock, medium grained felsic volcanic.

Grab sample representative of fine grained felsic volcanic. Moderately iron stained on surface. $S=<5 \%$ pyrite galena. Quartz veinlets $<.5 \mathrm{~cm}$ wide.

Representative grab sample heavily fractured mafic volcanic (faulted?) 10 degrees strike. $S=<1 \%$ pyrite, heavy manganese/iron staining.

Represenative grab sample, same type of mafic volcanic unit as SR 15 but heavily silicified. Strike 10 degrees, $S=<1 \%$ pyrite, quartz altered minor hematite stain.

Grab sample 15 cm wide sulphide vein, 8 degrees/vertical. $s=$ 10-15\% pyrite with a trace of galena. Silicous and heavily iron oxidized. Host rock hematite stained breccia.

Grab sample 5 cm wide sulphide pod, 175 degrees NW discontinuous dip. Possibly clay altered. $S=50 \%$ pyrite. Host rock felsic volcanic.

Grab sample of gossanous finegrained dark-green mafic volcanic. $S=<1 \%$ pyrite with associated quartz alteration and minor hematite staining.

Barite - 1

91 SR 21 Barite -

91 SR
Barite - 1

91 SR 23 Barite -

91 SR 24 Barite -

9
91

91 SR 26

Barite - 1
Barite - 1

Grab sample from a 30 cm wide quartz breccia vein, 118/50s. $S=<1 \%$ finely disseminated pyrite, trace of galena, Host rock fine-grained dark-green volcanic.

Grab sample pyrite pod. $S=$ 85\% pyrite, visible galena <1\% iron stained fine-grain darkgreen mafic volcanic.

Grab sample gossanous quartz vein. 130 degrees/vertical. S $=5-10 \%$ pyrite, visible galena. Appears to be following fractures. Host rock iron stain, moderately fractured, felsic volcanic.

Grab sample 5 cm wide quartz vein, 140 degrees/vertical. $S$ $=<1 \%$ pyrite, visible galena. Host rock felsic volcanics.

Grab sample pyrite pod 5 cm wide. Strike 30 degrees shallow dip (pod). $S=50 \%$ pyrite. Host rock felsic volcanic, heavily iron stained with moderate manganese staining.

Grab sample 10 cm wide calcite vein 53/85E. No visible mineralization, moderate fizz $10 \%$ hydrochloric acid. Wall rock fine-grain dark-green mafic volcanic, footwall felsic volcanic.

Grab sample, quartz vein 5 cm wide. $70 / 80 \mathrm{E}$ to vertical. $\mathrm{S}=$ $<.5 \%$ pyrite, <2\% galena. Host rock siliceous felsic volcanic.

Grab sample from fracture vein. $30 / 80 \mathrm{E}, \mathrm{S}=<1 \%$ pyrite, possible galena/sphalerite. Host rock heavily iron oxidized siliceous. Felsic volcanic.

Grab sample fracture system. 140 degrees/vertical. $S=<1 \%$

91 SR 26B $\quad$| Barite - 1 |
| :--- |
|  |
|  |
| $3 m$ north $S R 26 A$ |

Barite - 1

91 SR 28

91 SR 29

91 SR 30

91 SR 31

91 SR 32

91 SR 33
Barite - 2

91 SR 34
Barite - 2

Barite - 2
on north edge of a 110 degree striking linear

Barite - 2
pyrite, galena. Host rock same as SR 26.

Grab sample heavily fractured siliceous felsic volcanic. $S=$ 1\% pyrite, visible galena, moderate iron staining.

Grab sample 20 cm wide quartz vein, $132 / 70 \mathrm{SW} . \quad \mathrm{S}=<1 \%$ pyrite. Host rock hematite coloured mafic volcanic. Weak fizz 10\% hydrochloric acid.

Float, very coarse probably local. Similar to $S R 27$, p;redominate specular hematite on fracture surfaces. Heavily hematite stained and quartz altered. No visible pyrite.

Grab sample pyrite lens up to 10 cm wide. $90 / 75 \mathrm{SE} . \mathrm{S}=1 \%$ pyrite, trace galena. Host rock dark-green mafic volcanics.

Grab sample siliceous outcrop. 110 degrees/vertical. $S=<1 \%$ chalcopyrite/malachite, visible galena. Host rock siliceous feslic volcanic.

Grab sample quartz vein 5 cm wide. $165 / 10 \mathrm{w}$ shallow dip discontinuous. $S=<1 \%$ chalcopyrite, trace galena. Host rock siliceous volcanic.

Grab sample from a quartz vein (165/7W) minor chalcopyrite, galena, malachite, clay altered envelope.

Float, coarse exterior similar to veins in outcrop, up to 7 cm wide. Well formed crystals $<2 \mathrm{~cm}$ length. $S=<1 \%$ and poddy throughout.

Grab sample from quartz and barite fracture infilling. strike 140 degrees discontinuous. $S=<1 \%$ pyrite/galena. Host rock mafic


| 91 | SR | 48 | 50m northeast of 91 SR 47 | Grab sample from float, manganese staining, minor quartz veining. |
| :---: | :---: | :---: | :---: | :---: |
| 91 | SR | 49 | 50m northeast of 91 SR 48 | Talus, minor iron staining, minor quartz. |
| 91 | SR | 50 | 50m northeast of 91 SR 49 | Talus grab sample, minor iron staining. |
| 91 | SR | 52 | 50m northeast of 91 SR 50 | Talus grab sample, minor iron staining. |
| 91 | SR | 53 | 50m northeast of 91 SR 52 | Talus grab sample, minor iron staining. |
| 91 | SR | 54 | 50 m northeast of 91 SR 53 | Talus grab sample, minor iron staining. |
| 91 | SR | 55 | 7 m northeast of 91 Sr 54 | Grab sample of felsic float, possible clay alteration, heavy iron staining. |
| 91 | SR | 58 | 150 m from 91 SR 55 on a bearing of 70 degrees | Talus grab sample, moderate manganese staining, minor iron staining. |
| 91 | SR | 59 | 50 m due east of 91 SR 58 | Talus grab sample, minor quartz veining, some hematite staining. |
| 91 | SR | 61 | 50 m east of 91 SR 59 | Talus grab sample, hematite staining. |
| 91 | SR | 62 | 25 m east of 91 SR 61 | Grab sample from a 5 cm wide gossanous pyrite vein (135/80SW), 3-4\% pyrite. |
| 91 | SR | 64 | 25 m north of 91 SR 62 | Grab sample of a brecciated fault zone 1.0 m wide orientated at 180/50W, heavily iron stained, $1 \%$ galena, trace disseminated pyrite. |
| 91 | SR | 64A | at 91 SR 64 | Grab sample of fault gouge orientated at $170 / 165 \mathrm{~W}, 20 \mathrm{~cm}$ wide, moderate iron staining. |
| 91 | SR | 66 | 50 m north of 91 SR 64 | Grab sample of a pyrite vein 24 cm wide, orientated at $85 / 85 \mathrm{~S}$, 3\% pyrite, hosted by a darkgreen mafic volcanic. |
| 91 |  | 68 | Barite - 2 | Grab sample of float limonitic, |


| 91 SR 71 | Barite - 1 | Grab sample of a limonitic breccia, 2-3\% pyrite, heavy iron staining zone is approx. 5 m wide. |
| :---: | :---: | :---: |
| 91 SR 72 | Von - 2 | Grab sample of a 10 cm clay altered fault zone (140/30N) silicified, no visible pyrite, heavily fractured. |
| 91 SR 72A | Von - 2 | Chip sample 1.0 m wide of a silicified pyritic zone, orientated at $105 / 75 \mathrm{~N}$, $5 \%$ pyrite, heavy iron staining. |
| 91 SR 73 | Von - 2 | Grab sample of a $10-20 \mathrm{~cm}$ wide weathered sulphide vein orientated at $5 / 80 \mathrm{~W}, 1 \%$ pyrite, host rock is a silicified finegrained felsic volcanic. |
| 91 SR 73A | Von - 2 | Grab sample of a 10 cm wide quartz-calcite vein (180/75E), 1\% pyrite in well formed cubes, host rock is a felsic volcanic. |
| 91 SR 73B | Von - 2 | Grab sample of a $2-5 \mathrm{~cm}$ wide quartz-calcite-pyrite vein orientated at 170/80E, 5\% pyrite. |
| 91 SR 73C | Von - 2 | Grab sample of a 1 - 2 m wide breccia zone, silicified with calicte, $5 \%$ pyrite, orientated at $5 / 85 \mathrm{E}$. |
| 91 SR 74 | Von - 2 | Grab sample of a $10-20 \mathrm{~cm}$ quartz-calcite vein (155/80E), $2-5 \%$ coarse grained pyrite, host rock is a silicified finegrained purple volcanic. |
| 91 SR 75 | ```40m east of 91 SR 74``` | Grab sample of a 20 cm wide quartz-calcite vein, brecciated, , (165/80E), pyrite, host rock is silicified felsic volcanic, light-grey. |
| 91 SR 76 | 25 m northeast | Grab sample of a 20 cm wide |

Von - 2

91 SR $80 \quad$ Von - 2

91 SR 81
Von - 2


| 91 SR 83 | Von - 2 |
| :--- | :--- |
| 91 SR 84 | Von - 2 |

91 SR 84A
2 m east of 91 SR 84

91 SR 84B

91 SR 84C

91 SR 85
Barite - 1
quartz-pyrite vein (150/90) $50 \%$ quartz, heavy iron staining. Host rock fine-grained felsic volcanic.

Grab sample of quartz-pyrite vein 10 - 20 cm wide (170/90) $50 \%$ pyrite, limonite staining, host rock is a fine-grained felsic volcanic.

Grab sample of a massive pyrite vein 20 cm wide, $(25 / 85 \mathrm{~W}), 90 \%$ pyrite, highly silicified felsic volcanic.

Grab sample of float, 1.0 m wide, trace galena, quartz veins 1.0 cm wide, minor iron staining.

Grab sample of talus, moderate iron staining.

Grab sample of talus, moderate iron staining.

Grab sample of talus, minor pyrite.

Grab sample of a faulted offshoot quartz vein 4 cm wide (45/90) minor iron staining, host rock grey-black silicified felsic volcanic.

Grab sample of main fault zone 20 cm wide $(115 / 60 \mathrm{~N})$, minor pyrite, minor iron staining.

Grab sample of fault zone, 20 cm wide (25/80W).

Grab sample of a fault zone (55/80W), 1\% pyrite.

Grab sample of a silicified pyrite vein 20 cm wide (50/80s), $20 \%$ pyrite, host rock is a fine-grained silicified dark grey-black volcanic.

Grab sample of a 10 cm wide pyrite lens (40/30W), $30 \%$

|  |  | pyrite, gossanous, fine-grained light grey felsic volcanic. |
| :---: | :---: | :---: |
| 91 SR 87A | Von - 2 | Grab sample of a limonitic outcrop, quartz-pyrite alteration, 30\% pyrite (160/40W). |
| 91 SR 88B | Von - 2 | Grab sample of a 20 cm wide silicified, brecciated zone (Fo 0/60E), $20 \%$ pyrite, host rock felsic volcanic. |
| 91 SR 88B | Von - 2 | Grab sample of a silicified breccia 10 cm wide, $2 \%$ pyrite, gossanous, host rock felsic volcanic. |
| 91 SR 89A | Von - 2 | Grab sample of a 30 cm wide quartz-pyrite vein (164/75E), 15\% pyrite, gossanous outcrop, host rock felsic siliceous volcanic. |
| 91 SR 89B | Von - 2 | Grab sample of a 20 cm wide quartz-pyrite vein (165/75W), $20 \%$ pyrite, clay alteration, weathered out pyrite, host rock is a fine-grained felsic volcanic. |
| 91 SR 90A | Von - 2 | Grab sample of a quartz-pyrite vein 20 cm wide, (145/85W) argillic alteration specular hematite, silicified finegrained sediments. |
| 91 SR 90B | Von - 2 | Chip sample over 10 cm of a 4 cm wide fault zone (70/35S), heavy iron staining, host rock is a felsic volcanic. |
| 91 SR 91A | Von - 2 | Grab sample of a silicified volcanic, gossanous. |

$$
\begin{array}{lllllllll}
\mathrm{A} & \mathrm{P} & \mathrm{P} & \mathrm{E} & \mathrm{~N} & \mathrm{D} & \mathrm{I} & \mathrm{X} & \mathrm{C}
\end{array}
$$

## ROCK SAMPLE ASSAYS AND ANALYSES

# ECD-TECH LABORATORIES LTD. 

ASSAYING - ENVIRONMENTAL TESTING
10041 East Trans Canada Hwy., Kamloops. B.C. V2C 2 J 3 (604) 573-5700 Fax 573.4557

OCTOBER 10, 1991

CERTIFICATE OF ASSAY ETK 91-795

TEUTON RESOURCES CORP.
602-675 WEST HASTINGS STREET
VANCOUVER, B.C.
v6B 1N2

SAMPLE IDENTIFICATION: 331 ROCK samples received OCTOBER 3,1991

| ET\# | Description | $\begin{array}{r} A G \\ (g / t) \end{array}$ | $\begin{array}{r} A G \\ (02 / t) \end{array}$ | $\begin{gathered} C U \\ (8) \end{gathered}$ | $\begin{aligned} & \text { 2N } \\ & (\%) \end{aligned}$ | $\begin{aligned} & \text { PB } \\ & (8) \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $2-$ | BR 402 A | 43.5 | 1.27 | - | - | - |
| $5-$ | BR $¢ 02 \mathrm{D}$ | 278.2 | 8.11 | - | - | - |
| 78- | BR 459 A | 1761. | 51.36 | - | - | 65.60 |
| 79 - | BR 459 B | 64.4 | 1.88 | - | - | 2.68 |
| 81- | BR 461 | 171.2 | 4.99 | - | 4.60 | 2.48 |
| 82- | BR 462 | 48.4 | 1.41 | - | - | - |
| 105- | BR 473 C | 77.4 | 2.26 | - | - | - |
| 113- | BR 474 B | 49.1 | 1.43 | - | - | - |
| 157- | BR 500 C | 33.4 | . 97 | - | - | - |
| 166 - | MR 216 | 188.4 | 5.49 | - | - | 17.90 |
| 168 - | MR 222 | 319.6 | 9.32 | - | - | 32.50 |
| 169- | MR 223 | 147.2 | 4.29 | - | - | 22.60 |
| 170- | MR 224 | 200.4 | 5.84 | - | - | 36.70 |
| 171- | MR 225 | 30.0 | . 88 | - | - | 1.96 |
| 172- | MR 226 | 106.0 | 3.09 | - | - | 10.40 |
| 182- | MR 249 | 80.4 | 2.35 | - | - | 2.00 |
| 183- | MR 251 | 186.1 | 5.43 | - | - | - |
| 184 | MR 252 | - | - | - | - | 1.34 |
| 188- | MR 260 | 44.1 | 1.29 | - | - | - |
| $189-$ | MR 266 | 225.2 | 6.57 | - | - | 1.26 |
| 190- | MR 267 | 74.1 | 2.16 | - | - | - |
| 191- | MR 269 | 270.2 | 7.88 | - | - | - |
| 192- | MR 270 A | 119.2 | 3.48 | 4.64 | 11.76 | 1.32 |
| 193- | MR 270 B | 123.6 | 3.61 | 2.72 | - | - |
| 194- | MR 270 C | 160.8 | 4.69 | 2.8 | 15.92 | 3.32 |
| 195- | MR 270 D | 144.8 | 4.22 | 3.08 | 9.28 | 3.08 |
| 196- | MR 270 E | 255.2 | 7.44 | 5.84 | 7.12 | - |
| $197-$ | MR 271 | - | - | - | 2.96 | 2.16 |
| 198- | MR 278 | 41.1 | 1.20 | - | - | - |
| 224 - | MR 326 | 55.8 | 1.63 | - | - | - |

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ES in pph unless otherwise reported

TEUTON RESOURCES CORP. - ETX 91-79
602-675 hest hastings strget
vancouver, b.c.
v6B 1 N 2
project: barite von
331 rock sampies received october 3, 1991









| ert |  | cription | $\lambda U(\mathrm{ppb})$ |  | AL(1) | as | B | 8^ | BI | $\begin{gathered} \text { OCTOBER } \\ \text { CA(1) } \end{gathered}$ | $\begin{aligned} & 10 . \\ & \text { co } \end{aligned}$ | co | CR | cu | PE(0) $\times$ | $\mathrm{K}(1)$ | L | H6(1) | $\mu \mathrm{N}$ | \% | NA(1) | NI | P | PB | 58 | s. |  | TI(T) | 0 | $\nabla$ | * | Y | 2N |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 271. | SR | 028 | 10 | . 2 | . 02 | 75 | 10 | 535 | < | . 07 | <1 | 5 | 151 | 15 | 1.18 < | <. 01 | <10 | . 12 | 520 | 13 | 4.01 | 6 | 10 | 228 | 35 | $<20$ | 14 | <. 01 | <10 | 12 | 60 | $<1$ | 96 |
| 272 - | SR | 029 | 5 | 5.0 | 1.41 | 1420 | 14 | 40 | < | . 30 | <1 | 33 | 11 | 96 | 11.39 < | <. 01 | 10 | . 60 | 649 | 4 | <. 01 | 5 | 1640 | :36 | 120 | <20 | 13 | . 01 | <10 | 111 | $<10$ | <1 | 114 |
| $273-$ | SR | 030 | 25 | 14.8 | . 19 | 45 | 5 | 100 | $s$ | . 86 | 69 | 21 | 91 | 2976 | 1.82 | . 12 | 30 | . 07 | 4960 | 12 | $<.01$ | 7 | 310 | 1154 | 15 | $<20$ | 36 | <. 01 | $<10$ | 6 | 10 | 5 | 2387 |
| 274 - | SR | 031 | 5 | 3.0 | . 18 | so | 8 | 565 | <s | 1.80 | 5 | 17 | 57 | 95 | 1.97 | . 12 | 20 | . 07 | 1239 | 6 | $<.01$ | 4 | 410 | 458 | 5 | $<20$ | 16 | c. 21 | <10 | 3 | <1 | 5 | 408 |
| 275. | SR | 032 | 70 | >30 | . 13 | 170 | 2 | 55 | <s | 2.57 | 35 | 29 | 46 | 2172 | 6.69 | . 03 | 20 | . 5 | 6398 | 57 | e. 01 | 2 | 160 | 5130 | 45 | <20 | 45 | <. 01 | <10 | 3 | 70 | <1 | 4182 |
| 276. | SR | 031 | 5 | 27.8 | . 10 | 40 | 10 | 420 | <s | . 09 | 1 | 2 | 187 | 172 | . 65 | . 06 | <10 | . 01 | 822 | 14 | . 01 | 2 | 130 | 80 | 145 | $<20$ | 12 | <. 01 | <10 | <1 | $<10$ | 3 | 96 |
| 277. | SR | 034 | cs | 18.2 | 2.07 | :10 | $<2$ | 30 | <s | 1.41 | <1 | 78 | 21 | 1282 | 11.68 < | <. 01 | 20 | 2.69 | 1233 | ${ }^{81}$ | <. 01 | 12 | 680 | >10000 | 25 | $<20$ | 24 | <. 01 | 10 | 145 | <10 | -1 | 225 |
| 278. | SR | 035 | 10 | 3.6 | . 85 | 15 | 8 | 290 | <s | 2.15 | <1 | 11 | 33 | 705 | 2.98 | . 14 | 10 | . 62 | 2906 | 5 | <. 01 | 1 | 910 | 100 | 5 | $<20$ | 56 | <. 01 | <10 | 34 | <10 | , | 94 |
| 279 - | SR | 036 | 5 | 2.6 | . 11 | 35 | 8 | 385 | <s | 3.16 | <1 | 10 | 51 | 371 | 1.57 | . 07 | 10 | . 44 | 6786 | 5 | <.02 | , | 190 | 146 | 5 | $<20$ | 61 | <. 01 | <10 | , | <10 | 5 | 68 |
| $280-$ | SR | 037 | 10 | 6.4 | . 12 | so | 6 | 20 | <s | 1.80 | 13 | 29 | 12 | 812 | 2.94 | . 09 | 10 | . 51 | 3058 | 42 | <.01 | 3 | 330 | 2350 | 10 | $<20$ | ${ }^{18}$ | c. 01 | <10 | 5 | 10 | 2 | 1559 |
| $281-$ | SR | 039 | < 3 | 5.0 | . 12 | 55 | 10 | 35 | <s | . 04 | < 1 | 1 | 155 | 18 | 3.91 | . 19 | 10 | . 06 | 98 | 15 | . 01 | s | 510 | :4 | 15 | <20 | 14 | <. 01 | $<10$ | 21 | <10 | 8 | 10 |
| $282-$ | SR | 0398 | cs | 3.2 | . 30 | \$s | 14 | 25 | < 5 | . 10 | <1 | 6 | 28 | 17 | 6.13 | . 38 | 10 | . 12 | 125 | 13 | . 01 | 1 | 930 | 208 | 35 | $<20$ | 20 | . 01 | -10 | 4 | $<10$ | < | 22 |
| $283-$ | SR | 013 | <s | . 8 | 2.05 | 45 | 10 | 365 | <s | . 88 | <1 | 20 | 25 | 27 | 6.50 | . 23 | 10 | 1.67 | 2178 | 1 | <. 01 | 5 | 2270 | 94 | 15 | $<20$ | 31 | . 03 | <10 | 90 | $<10$ | , | 289 |
| 284- | SR | cas | es | >0 | 2.84 | $s$ | $<2$ | 30 | es | 1.28 | 352 | 17 | 31 | 2768 | 4.11 | 3.00 | 10 | . 55 | 1221 | 5 | <. 01 | 3 | 670 | >10000 | 30 | $<20$ | 26 | . 02 | <: 0 | 113 | 70 | 4 | $>10000$ |
| 209. | ${ }^{\text {sR }}$ | 046 | es | -30 | . 06 | 30 | 8 | 19 | 103 | . 20 | 901 | ${ }^{1}$ | 18 | 649 | 1.93 | . 01 | <10 | . 03 | 924 | , | -. 01 | : | $<10$ | \$10000 | 180 | $<20$ | 3 | <. 21 | 20 | 2 | 90 | al | $>10000$ |
| 286 - | SR | 047 | <s | 13.2 | . 61 | 90 | 6 | 25 | es | :.s9 | 32 | 11 | ${ }^{50}$ | 386 | 4.55 | . 46 | -10 | : 3 | 1891 | ${ }^{11}$ | <. 01 | $<1$ | 480 | 4018 | 20 | $<20$ | 4 | . 01 | <:0 | 12 | 60 | -1 | 3054 |
| $287-$ | SR | 048 | 5 | 4.4 | . 33 | 40 | 8 | 265 | < 5 | . 21 | , | 6 | ${ }^{68}$ | 24 | 2.60 | . 21 | 20 | . 09 | ${ }^{488}$ | , | <.0) | , | 920 | 2598 | 5 | $<20$ | 12 | . 21 | 810 | a | <:0 | , | 616 |
| 288 - | SR | 049 | cs | 5.2 | . 82 | 30 | 10 | 295 | es | 39 | : 0 | $: 2$ | 40 | 14 | 3.76 | . 26 | 10 | . 37 | 1972 | 3 | <.01 | 3 | 1380 | 1450 | 10 | $<20$ | 14 | . 24 | -10 | 36 | :0 | 4 | 1344 |
| 289. | SR | 050 | 5 | 1.6 | . 1 | 20 | 10 | 150 | < 5 | . 33 | 2 | 10 | 19 | 13 | 3.37 | . 21 | 20 | . 41 | 1174 | , | 4.01 | 2 | :070 | 362 | 5 | <20 | , | . 32 | <10 | 31 | <10 | 4 | 49 |
| 290. | SR | 052 | 5 | 1.4 | 1.12 | 35 | 10 | 150 | <s | . 52 | 1 | 16 | 33 | 33 | 3.93 | . 19 | 20 | . 52 | 1695 | 2 | 8.01 | 4 | :290 | 160 | 10 | $<20$ | 12 | . 01 | <10 | 37 | $<10$ | 3 | 280 |
| $291-$ | SR | 053 | 5 | . ${ }^{\text {}}$ | . 90 | 35 | :2 | 210 | < 5 | . 51 | 1 | 13 | 43 | 14 | 3.65 | . 19 | 20 | . 50 | 1592 | - | <. 01 | 3 | 950 | 112 | 5 | <20 | :2 | . 22 | <: 0 | 20 | $<20$ | , | 291 |
| $292-$ | SR | 054 | 10 | <. 2 | 1.60 | 15 | 12 | 105 | es | . 12 | <1 | 19 | 14 | , | 4.20 | . 26 | 20 | 1.27 | 1098 | $<1$ | 4.01 | 3 | 1310 | 44 | 5 | $<20$ | :2 | . 02 | <:0 | 32 | $<20$ | 2 | 216 |
| $293-$ | sR | 0ss | 5 | 1.2 | . 32 | 65 | 8 | 80 | es | . 15 | 1 | 5 | 71 | 30 | 2.52 | . 16 | 10 | . 11 | 242 | 26 | . 01 | 2 | 170 | 158 | 5 | <20 | 6 | <. 01 | <10 | ${ }^{8}$ | <10 | $<1$ | 117 |
| $294-$ | SR | 058 | 5 | . 4 | 2.41 | 30 | 14 | 590 | < 5 | 2.22 | <1 | 28 | 25 | 42 | 6.50 | . 24 | 10 | 2.67 | 3132 | 1 | 8.01 | - | 1540 | 132 | 10 | <20 | 4 | . 02 | <10 | 1ss | <10 | 3 | 191 |
| 295. | SR | 059 | $s$ | . 6 | 2.38 | 20 | 14 | 270 | cs | 1.65 | 2 | 24 | 21 | 31 | 5.96 | . 18 | 10 | 1.10 | 1758 | 1 | <. 01 | - | i540 | 88 | 15 | <20 | 31 | . 01 | <10 | : 28 | <10 | 1 | 47 |
| 296 - | SR | 061 | 5 | . 2 | 2.90 | 25 | 12 | 205 | cs | 2.23 | <1 | 34 | 52 | 19 | 7.76 | . 11 | 10 | 2.86 | 3352 | 2 | 0.01 | , | 1140 | 56 | 20 | $<20$ | 3 | . 01 | $<10$ | 200 | -10 | ${ }^{1}$ | 591 |
| 297. | SR | 062 | <s | 4.2 | 1.05 | 410 | 10 | 30 | < 3 | . 19 | <1 | 23 | 19 | 27 | 10.34 | . 08 | <10 | . 44 | 440 | 2 | . 02 | 6 | 1180 | 420 | 35 | <20 | 11 | $<.01$ | <10 | 97 | <10 | $<1$ | 103 |
| 298. | SR | 064 | 5 | 7.6 | . 44 | 175 | $<2$ | 45 | < 3 | 1.98 | 37 | 36 | 24 | 74 | 4.97 | . 10 | 20 | . 44 | 1412 | 5 | 8.01 | 5 | 1150 | 8432 | 15 | <20 | 18 | . 04 | <10 | 63 | 80 | 13 | 5102 |
| $299-$ | SR | 064A | 25 | 4.2 | . 36 | 240 | ${ }^{8}$ | 275 | < | . 21 | <1 | 54 | 19 | 23 | 5.34 | . 36 | 10 | . 10 | 3233 | 6 | $<.01$ | , | 990 | 374 | 3 | <20 | ${ }^{1}$ | 2.01 | <10 | 17 | $<10$ | 6 | 143 |
| $300-$ | sR | 066 | 10 | 4.4 | 1.84 | 150 | 12 | 35 | <s | . 6 | <1 | 36 | , | 31 | 10.58 | . 15 | 20 | . 89 | 2343 | 2 | 4.01 | 8 | 1370 | 150 | 35 | <20 | 13 | <. 01 | <10 | 128 | $<10$ | <1 | 296 |
| 301. | SR | 068 | 20 | 1.8 | . 14 | 145 | $: 0$ | 65 | < 5 | . 03 | <1 | 28 | 37 | 11 | 13.71 | . 16 | <10 | . 21 | 1212 | 19 | . 01 | 3 | 230 | 112 | 10 | $<20$ | 3 | 4.01 | 10 | $<1$ | <10 | $<1$ | 136 |
| $302-$ | sR | 071 | 10 | 2.6 | . 23 | 90 | 10 | 35 | < 5 | . 06 | <1 | , | 67 | 13 | 7.55 | . 15 | 10 | . 12 | 1425 | 12 | . 01 | 1 | 890 | 68 | 20 | $<20$ | 14 | <.01 | $<10$ | 3 | $<10$ | <1 | 229 |
| $303-$ | SR | 072 | 5 | . 2 | . 60 | 85 | 10 | as | <s | . 46 | 1 | 15 | 16 | 1 | 7.92 | . 34 | 30 | . 19 | 1785 | 1 | <.01 | 4 | 1570 | 20 | 5 | $<20$ | 21 | <. 01 | <10 | 17 | < 10 | 1 | 243 |
| $304-$ | sR | 072A | 10 | 5.0 | . 24 | 295 | 8 | 20 | < 5 | . 06 | 6 | 15 | 115 | 47 | 3.46 | . 04 | <10 | . 09 | 95 | 16 | <. 01 | 3 | 420 | 504 | 40 | $<20$ | 8 | <. 01 | <10 | 30 | 10 | $<1$ | 636 |
| 305. | SR | 073 | $s$ | 1.2 | . 12 | 20 | 6 | 10 | < 5 | . 02 | $<2$ | 2 | 14 | 3 | 2.02 | . 16 | $<10$ | . 03 | 42 | 10 | <. 01 | $<1$ | 20 | 64 | 10 | $<20$ | 4 | <. 01 | <10 | : | <10 | < 1 | 28 |
| 306 - | SR | 073x | 10 | 2.2 | . 01 | is | 6 | 45 | <s | 215 | 1 | 5 | 12 | 34 | 5.36 | <. 01 | <10 | . 19 | 6055 | , | <. 01 | $<1$ | $<10$ | 560 | 20 | $<20$ | 222 | 4.01 | 60 | $<1$ | 40 | <1 | 274 |
| 307. | SR | 0738 | 10 | 2.2 | . 34 | 60 | 6 | 55 | <s | 4.05 | <1 | J | 67 | 33 | 3.12 | . 07 | 10 | . 11 | 1044 | 8 | <.01 | $<1$ | 510 | 38 | 15 | <20 | 65 | <. 01 | $<10$ | 25 | $<10$ | 1 | 61 |
| 308- | SR | 073 c | 5 | <. 2 | . 09 | 75 | 6 | 20 | <s | 11.55 | <1 | 4 | 17 | 7 | 4.11 | . 01 | 10 | . 08 | 2572 | 6 | <.01 | $<1$ | 290 | 50 | 10 | $<20$ | 79 | <. 01 | 10 | 11 | 10 | 1 | 94 |



$$
\begin{array}{lllllllll}
\mathbf{A} & \mathbf{P} & \mathrm{E} & \mathrm{~N} & \mathrm{D} & \mathrm{I} & \mathbf{X} & \mathrm{D}
\end{array}
$$



## ECO-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING
10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J3 (604) 573.5700 Fax 573-4557

TEUTON RESOURCES CORP. ETK 91-795 OCTOBER 10, 1991



es in pph unless otherwise reported
teuton resources corp. - etr 91-802
602-675 west hastings street
vancouver, b.c.
v6B 1 2 2
$\bigcirc \bigcirc O M$
project: barite / von
60 SILT SAMPLES RECEIVED oCTOBER 3, 1991

| description | AU (ppb) |  | AL( ${ }^{\text {( }}$ | as | B | BA |  | CA(1) | co | co | cr | cu P | PE( ${ }^{\text {a }}$ | $x(1)$ | IA | MG(1) | ms | Mo | NA(t) | ni | $p$ | PB | 58 | ss | SR 7 | (1) | 0 | v | * | Y | 2N |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| - bs 408 | - 5 | 1.0 | 1.25 | 75 | 4 | 615 | < 5 | . 17 | <1 | 15 | 6 | 31 | 3.76 | . 02 | 10 | . 47 | 4170 | 3 | . 01 | 4 | 990 | so | 10 | $<20$ | 13 | . 02 | <10 | 3) | <10 | 7 | 155 |
| bs 411 | 5 | . 4 | 1.42 | 50 | 6 | 270 | < 5 | . 13 | <1 | 13 | 7 | 19 | 3.02 | . 03 | 10 | . 52 | 1617 | 2 | <.02 | 6 | 820 | 44 | 5 | <20 | 12 | . 02 | $<10$ | 39 | 10 | 4 | 118 |
| Ms 201 | 5 | 1.4 | 1.55 | 70 | 8 | 955 | < 5 | . 38 | 2 | 22 | 6 | 87 | 4.10 | . 15 | 20 | . 64 | 3377 | 1 | $<.01$ | 6 | 1500 | 182 | 10 | $<20$ | 21 | . 01 | $<10$ | 45 | <10 | 12 | 301 |
| Ms 202 | 5 | 1.0 | 1.36 | 60 | 6 | 685 | < 5 | . 24 | 2 | 19 | 5 | 42 | 3.97 | . 07 | 10 | . 64 | 4609 | 2 | <.01 | 5 | 970 | 102 | 10 | $<20$ | 15 | . 02 | <10 | 47 | <10 | 5 | 202 |
| Ms 203 | 5 | 1.4 | 1.46 | 65 | 6 | 970 | < 5 | . 25 | 3 | 23 | 5 | 59 | 4.47 | . 08 | 20 | . 66 | 6575 | 3 | <. 01 | 6 | 1090 | 124 | 10 | $<20$ | 16 | . 02 | <10 | 51 | 10 | 8 | 227 |
| - ms 204 | 5 | . 2 | . 89 | 45 | 8 | 325 | < 5 | . 35 | $<1$ | 12 | 4 | 16 | 3.94 | . 04 | 10 | . 60 | 659 | <1 | <. 01 | 1 | 1130 | 44 | 10 | <20 | 16 | . 02 | <10 | 61 | <10 | 3 | 119 |
| - ms 205 | 5 | . 4 | 1.02 | 43 | 8 | 310 | < 5 | . 29 | $<1$ | 12 | 4 | 18 | 3.51 | . 05 | 10 | . 54 | 880 | 1 | <.01 | 1 | 1000 | 52 | 3 | $<20$ | 15 | . 02 | <10 | 48 | <10 | 5 | 130 |
| Ms 206 | 5 | . 2 | . 83 | 40 | 8 | 265 | < 5 | . 28 | $<1$ | 11 | 3 | 15 | 3.21 | . 04 | 10 | . 52 | 839 | <1 | <. 01 | $<1$ | 1000 | 42 | 5 | <20 | 14 | . 02 | <10 | 43 | $<20$ | 4 | 128 |
| - Ms 208 | 5 | . 2 | . 75 | 50 | 6 | 230 | <s | . 33 | <1 | 14 | 3 | 19 | 4.02 | . 03 | 10 | . 55 | 986 | <1 | . 01 | 2 | 1200 | 42 | 10 | <20 | 14 | . 03 | <10 | 51 | $<10$ | 4 | 118 |
| - ms 211 | 5 | . 2 | . 69 | 40 | 8 | 240 | < 5 | . 33 | $<1$ | 12 | 3 | 15 | 3.34 | . 03 | 10 | . 33 | 818 | <1 | <.01 | 1 | 1170 | 32 | 3 | $<20$ | 13 | . 03 | <10 | 4 | $<10$ | 4 | 111 |
| MS 213 | 20 | . 4 | . 70 | 45 | B | 160 | < 5 | . 33 | <1 | 12 | 2 | 17 | 3.45 | . 03 | 10 | . 56 | 777 | 1 | $<.01$ | < | 1150 | 78 | 10 | $<20$ | 12 | . 02 | $<10$ | 41 | <10 | 3 | 110 |
| - Ms 215 | - 20 | . 2 | . 65 | 35 | 6 | 205 | < 5 | . 38 | <1 | 11 | 2 | 14 | 2.99 | . 03 | 10 | . 52 | 609 | $<1$ | $<.01$ | 1 | 1140 | 20 | 10 | $<20$ | 13 | . 03 | $<10$ | 37 | <10 | 4 | 96 |
| - MS 217 | 10 | . 4 | . 85 | 55 | 8 | 495 | < 5 | . 38 | <1 | 18 | 3 | 25 | 4.10 | . 06 | 10 | . 59 | 1486 | $<1$ | <.01 | , | 1360 | 46 | 10 | $<20$ | 18 | . 04 | $<10$ | 56 | <10 | 6 | 158 |
| ms 218 | 5 | . 4 | . 75 | 45 | 8 | 800 | <s | . 36 | <1 | 13 | 3 | 20 | 3.49 | . 05 | 10 | . 45 | 1436 | $<1$ | $<.01$ | 2 | 1320 | 86 | 10 | <20 | 21 | . 03 | <10 | 39 | <10 | 6 | 150 |
| Ms 219 | 5 | . 2 | . 85 | 45 | 8 | 350 | < 5 | . 34 | $<1$ | 15 | 4 | 17 | 3.95 | . 04 | 10 | . 56 | 1006 | $<1$ | <.01 | 3 | 1260 | 64 | 15 | <20 | 15 | . 03 | <10 | 51 | <10 | 5 | 145 |
| Ms 220 | 5 | . 2 | . 88 | so | 8 | 275 | < 5 | . 36 | $<1$ | 16 | 3 | 18 | 4.11 | . 03 | 10 | . 67 | 954 | <1 | 4.01 | 2 | 1340 | 44 | 10 | <20 | 14 | . 03 | $<10$ | 52 | 10 | 5 | 142 |
| - Ms 237 | 5 | . 2 | . 90 | 50 | 8 | 320 | < 5 | . 35 | $<1$ | 16 | 4 | 18 | 4.48 | . 05 | 10 | . 67 | 1205 | $<1$ | <.01 | 2 | 1270 | 42 | 10 | <20 | 14 | . 03 | $<10$ | 57 | 10 | 4 | 147 |
| - Ms 238 | 5 | . 6 | . 76 | 45 | 8 | 580 | < 5 | . 36 | $<1$ | 13 | 4 | 19 | 3.80 | . 04 | 10 | . 47 | 1059 | $<1$ | <. 01 | 2 | 1260 | 106 | 5 | $<20$ | 17 | . 02 | $<10$ | 42 | $<10$ | 4 | 159 |
| - Ms 239 | - 5 | . 4 | . 74 | ${ }^{10}$ | - | 420 | < 5 | . 31 | $<1$ | 13 | 3 | 28 | 3.71 | . 04 | 10 | . 48 | 1202 | 1 | $<.01$ | 1 | 1150 | 64 | 3 | $<20$ | 13 | . 02 | $<10$ | 42 | $<10$ | 4 | 140 |
| - Ms 253 | 5 | 1.8 | 1.39 | 70 | 8 | 955 | < 5 | . 35 | 1 | 14 | 5 | 29 | 3.56 | . 04 | 20 | . 49 | 3191 | 3 | . 01 | 2 | 1080 | 148 | 10 | $<20$ | 26 | . 02 | <10 | 37 | $<10$ | 10 | 189 |
| - Ms 256 | - 10 | 1.4 | .63 | 55 | 8 | 145 | cs | . 27 | 1 | - | 2 | 20 | 2.78 | . 04 | 10 | . 25 | 1383 | 1 | <. 01 | $<1$ | 810 | 64 | 10 | $<20$ | 17 | . 02 | <10 | 25 | $<10$ | 3 | 184 |
| - MS 257 | 5 | 1.0 | . 63 | 55 | ${ }^{8}$ | 110 | < 5 | . 31 | 1 | 9 | 1 | 19 | 2.52 | . 06 | 10 | . 24 | 1331 | 1 | <. 01 | < | 900 | 46 | 10 | $<20$ | 19 | . 01 | $<10$ | 21 | $<10$ | 4 | 216 |
| - Ms 259 | - 5 | 1.6 | . 66 | 60 | 8 | 105 | <5 | . 23 | 3 | 20 | 2 | 61 | 2.77 | . 04 | 10 | . 24 | 1905 | 2 | <. 01 | 2 | 870 | 238 | 10 | $<20$ | 14 | . 01 | $<10$ | 23 | <10 | 4 | 345 |
| MS 273 | 5 | 1.4 | . 45 | 65 | 6 | 65 | < 5 | . 36 | 1 | 7 | $<1$ | 11 | 2.59 | . 02 | 10 | . 22 | 826 | 1 | <. 02 | $<1$ | 710 | 48 | 10 | $<20$ | 17 | . 01 | $<10$ | 18 | $<10$ | 2 | 145 |
| - ks 274 | 5 | 2.2 | . 44 | 75 | 6 | so | < | . 46 | 1 | 7 | $<1$ | 12 | 2.65 | . 01 | 10 | . 20 | 695 | 1 | <.01 | <1 | 650 | 76 | 10 | $<20$ | 20 | . 01 | $<10$ | 15 | 10 | 1 | 154 |
| - Ms 275 | 5 | 2.6 | . 43 | 95 | 8 | 40 | <s | . 32 | 1 | 7 | $<1$ | 14 | 2.95 | . 01 | 10 | . 21 | 757 | 1 | <. 01 | <1 | 670 | 66 | 20 | $<20$ | 16 | . 01 | $<10$ | 17 | $<10$ | 1 | 155 |
| - MS 276 | 5 | 1.4 | . 46 | 63 | 6 | 60 | < | . 81 | 1 | 7 | $<1$ | 17 | 2.56 | . 01 | 10 | . 24 | 935 | 2 | $<.01$ | 1 | 790 | 78 | 10 | <20 | 26 | . 01 | $<10$ | 15 | 10 | 2 | 18 : |
| - Ms 279 | - 5 | . 8 | . 64 | 50 | 6 | 55 | < | . 10 | $<1$ | 7 | <1 | 11 | 2.77 | . 02 | 10 | . 20 | 409 | 1 | $<.01$ | < | 460 | 58 | 5 | $<20$ | 11 | . 01 | $<10$ | 9 | $<10$ | <1 | 120 |
| - ms 280 | 5 | 1.0 | . 82 | 65 | 6 | 95 | < | . 14 | $<1$ | 10 | $<1$ | 16 | 3.63 | . 03 | 10 | . 25 | 560 | 1 | <. 01 | $<1$ | 560 | 66 | 10 | $<20$ | 15 | . 01 | $<10$ | 11 | $<10$ | 2 | 143 |
| - M 282 | - 5 | 1.0 | . 94 | 60 | 8 | 120 | <5 | . 14 | $<1$ | 10 | $<1$ | 20 | 3.49 | . 05 | 10 | . 25 | 499 | $<1$ | <.01 | $<1$ | 500 | 66 | 10 | $<20$ | 26 | . 02 | $<10$ | 12 | $<10$ | : | 137 |


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terra nova expl. cons. ltd.
R.R. 11 L-9
bonen island, b.c.
Von 160
947-2596
ATTM: B. V. BALL
682-3680
ATti: dino cremonese

eco-tech laboratories ltd.
Frank J. Perzotti, A.sc.t.
B.C. Certified assayer



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- 20 (-45)
terra nova expl. cons. ltd
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BOWEN ISLAND, B.C
ON 160
947-239
ATTN: B. V. hail

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ATTN: DINO CREmonest

frank J. Pezzotti, A.sc.t.
s.c. Certified Aasayer
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## COST STATEMENT

WAGES
Brian V. Hall (Geologist)
September $12(1 / 2), 13(1 / 2), 15-29,1991$
October 11 (1/2), 1991
November $1(1 / 2), 11(1 / 2), 25(1 / 2), 26,27,1991$
December $10(1 / 2), 11(1 / 2), 13(1 / 2), 15,16$,$17(1 / 2), 18,1991$
25 days at $\$ 300.00 /$ day ..... $\$ 7,500.00$
Brian Sauer (Prospector)
September 15 - 29, 1991
15 days at $\$ 175.00 /$ day ..... $2,625.00$
Mike Gray (Prospector)
September 16-28, 1991
13 days at $\$ 175.00 /$ day ..... $2,275.00$
Total ..... $\$ 12,400.00$
RENTALS
Camp Rental
15 days at $\$ 50.00 /$ day ..... \$ 750.00
Truck Rental
15 days at $\$ 50.00 /$ day ..... 750.00
SBX - 11 HF Radio200.00
Total\$ 1,700.00
ASSAYS AND ANALYSES
321 Rock Samples analysed for
31 elements a $\$ 17.12 /$ sample ..... $\$ 5,495.52$
52 Silt samples analysed for31 elements at \$14.18/sample737.23
31 Talus fine samples analysed for
31 elements at $\$ 14.18 / s a m p l e$ ..... 439.58
6 Soil samples analysed for
31 elements at \$14.18/sample ..... 85.08
35 Silver assays at \$9.10/sample ..... 318.33
22 Lead assays at \$6.96/sample ..... 153.01
10 Zinc assays at $\$ 6.96 /$ sample ..... 69.60
5 Copper assays at $\$ 6.96 / s a m p l e$ ..... 34.80

## HELICOPTER

Vancouver Island Helicopters 3.4 hours at $\$ 768.52 /$ hour ..... \$ 2,612.96
FUEL ..... 326.63
FIELD SUPPLIES ..... 66.62
DELIVERY CHARGES ..... 435.89
TELEPHONE ..... 25.18
FOOD AND ACCOMMODATION ..... 1,183.19
OFFICE SUPPLIES ..... 43.27
TYPING AND DRAFTING (ESTIMATED) ..... 700.00
$\begin{array}{lllllllll}\mathbf{A} & \mathbf{P} & \mathbf{P} & \mathrm{E} & \mathrm{N} & \mathrm{D} & \mathbf{I} & \mathbf{X} & \mathbf{F}\end{array}$

STATEMENT OF QUALIFICATIONS

## STATEMENT OF QUALIFICATIONS

I, Brian V. Hall of RR 1, Bowen Island, British Columbia, VON $1 G 0$ do certify that:

1) I am a graduate of the University of British Columbia (B.Sc., 1975) and the University of waterloo (M.Sc., 1978) in geology.
2) I have practiced my profession for the past 16 years since my graduation from the University of British Columbia.
3) I am a member of the Society of Economic Geologists, Fellow of the Geological Association of Canada and a member of the British Columbia Association of Professional Engineers and Geoscientists (P.Geo).
4) I have no direct or indirect interest in the property discussed in this report, or in Teuton Resources Corp.
5) The work described in this report is the result of field work carried out by myself, field personnel under my supervision, plus relevant published reports.








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