NTS $92 \mathrm{~B} / 12 \mathrm{~W}$
LAT. $-48^{\circ} 31^{\prime} 00 \mathrm{~N}$
LONG.- $123^{\circ} 55^{\prime} 00 \mathrm{~W}$

# GEOLOGICAL AND GEOCHEMICAL REPORT on the VALENTINE CLAIM GROUP, VALENTINE MTN, SOOKE, B.C. 

FOR:
BEAUPRE EXPLORATIONS LTD., 108-3930 SHELBOURNE ST., VICTORIA, B.C. V8P 5P6

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### 1.0 INTRODUCTION

This report was prepared at the request of Beaupre Explorations Ltd. and consists of a compilation of geological fieldwork, trenching and rock chip sampling carried out between April 24 and December 31, 1997 within the Valentine claim group. The purpose of this report is to summarize geological data in order to evaluate the economic mineral potential of the Valentine claims.

### 2.0 LOCATION, ACCESS \& PHYSIOGRAPHY

The property is located 49 km . WNW of Victoria, and 19 km . N of Sooke on SW Vancouver Island (Fig. 1 \& 2). A network of logging roads (most of which require 4 WD ) access about $50 \%$ of the claims. The main logging road access has weekday travel restrictions during the period 07:00 to 17:00 hours. Other access problems include heavy rain washouts, fire closures and snow at higher elevations. Relatively mild coastal climate allows year round fieldwork to be carried out.

The property is part of the Insular Mountains which formed as a result of crustal thickening and subsequent mature dissection of a Tertiary erosion surface of relatively low relief, now expressed as fault controlled valleys and faultline scarps forming monadnock-like plateaus (Grove,E.W.,1990). Quaternary ice advances from the north and west has deposited a 1-5 meter depth of till throughout the region.

### 3.0 PROPERTY STATUS

A list of claims which comprise the Valentine claim group is listed as follows:

| CLAIM NAME | \# OF UNITS | RECORD \# | MINING DIVISION | EXPIRY DATE |
| :---: | :---: | :---: | :---: | :---: |
| BPEX 1 | 20 | 260324 | Victoria | Feb. 6,99 |
| BPEX 2 | 18 | 260325 | Victoria | Feb. 6, 99 |
| BPEX 3 | 1 | 260326 | Victoria | Feb. 6, 99 |
| BPEX 5 | 1 | 260334 | Victoria | March 6, 99 |
| BPEX 6 | 1 | 260335 | Victoria | March 6,99 |
| BPEX 7 | 8 | 260354 | Victoria | Oct. 5, 98 |
| BPEX 12 | 14 | 260338 | Victoria | April 2. 99 |
| DORAN 2 Fr | 1 | 261023 | Victoria | July 9, 99 |
| BPEX 4 | 3 | 260333 | Victoria | March 6,99 |
| Doran 1 | 2 | 261022 | Victoria | July 7, 99 |
| Al | 1 | 355610 | Victoria | April 24,00* |
| A2 | 1 | 355611 | Victoria | April 24,00* |
| A 3 | 1 | 355612 | Victoria | April $24,00^{*}$ |
| At | 1 | 355613 | Victoria | April $24,00^{*}$ |
| A5 | 1 | 355614 | Victoria | April 24,00* |
| A6 | 1 | 355615 | Victoria | April $24,00^{*}$ |
| A7 | 1 | 355616 | Victoria | April $24,00^{*}$ |
| A8 | 1 | 355617 | Victoria | April $24,00^{*}$ |
| A9 | 1 | 355618 | Victoria | April $24,00^{*}$ |
| Al0 | 1 | 355619 | Victoria | April 24, $00^{*}$ |
| All | 1 | 355620 | Victoria | April $24,00^{*}$ |
| Al2 | 1 | 355621 | Victoria | April 24, 00* |
| A13 | 1 | 355622 | Victoria | April $2+, 00^{*}$ |

- Expiry dates of A1-A13 includes two years assessment work as described within this report.


### 4.0 AREA HISTORY

Placer gold was discovered in the 1860's in sand and gravel alluvium along the San Juan, Leech, Jordan, Sombrio and Loss Creek drainage basins. Leech River was hydraulic mined intermittently until 1941. Nuggets up to 1 ounce and a total production of $10,000-20,000$ ounces were sluiced from gravel/bedrock contacts along riverside bars.

Base and precious metal lode deposits in Southern Vancouver Island consist of massive sulphides, skarns, quartz veins and shears. $\mathrm{Cu}-\mathrm{Pb}-\mathrm{Zn}-\mathrm{Ag}-\mathrm{Au}$ massive sulphides occur near Mt. Sicker. Past producers in this area include Lenora, Tyee, Richard III, and Lara (which has published reserves of 529,000 tonnes grading $1.11 \% \mathrm{Cu}, 1.22 \%$ $\mathrm{Pb}, 5.87 \% \mathrm{Zn}, 4.73 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $100.1 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ ). Magnetite-chalcopyrite skarns in the Cowichan Lake area have produced in excess of 15 million pounds of copper and 75,000 ounces of silver. Shear zone copper deposits occur near the mouth of the Jordan R. where then Sunloch-Gabbro property is located. Past production includes several million pounds of Cu as well as minor silver and gold. The adjacent prospect known as the Sunro shear contains probable reserves of 1.47 million tonnes@ $1.43 \% \mathrm{Cu}$.

### 5.0 VALENTINE MOUNTAIN HISTORY AND GEOLOGY

Gold bearing quartz and/or sulphide zones have been the focus of attention on Valentine Mountain. A summary of previous work (which is mostly situated on Blaze 1,2 claims) is outlined as follows:

1. Gold bearing quartz is hosted in mixed schist/gneiss (i.e. metapelites/metasandstones). Amphibolite units are key stratigraphic horizons and outline major structures, and host gold bearing quartz in the area of the "Discovery Zone" ( 3 km . west of RB claims). A weakly altered, E-W trending, steeply dipping, laterally continuous, $50-200 \mathrm{~m}$. thick amphibolite unit is in close proximity (about $5-50 \mathrm{~m}$.) to the main series of goldquartz veins. A total of 3 gold-quartz veins were defined by drill intercepts as follows:
"C" vein zone: Located parallel and $10-15 \mathrm{~m}$. south of the " 36 " (aka " $B$ " vein), the " $C$ " vein consists of white to grey quartz, trace amounts of pyrrhotite, marcasite and native gold hosted in mixed gneiss and schist. DDH 82-6 intersected the "C" vein at $36.0-36.5 \mathrm{~m}$. depth and returned 7.550 opt Au across 0.5 m . Several other holes drilled nearby (i.e. $82-3.7,7 \mathrm{~A}, 5,5 \mathrm{~A}, 6 \mathrm{~A}$ ) intersected the "C" vein with assay values up to 0.174 opt Au across 0.3 m .
" $D$ " vein zone: Parallel and 50 m . north of the " $C$ " vein is the " $D$ " vein, which is localized along a fault zone along an amphibolite/gneiss contact. This vein was intersected by DDH 82-6A, $6,5, \& 21$ with values up to 0.063 opt Au across 1.3 m ., which was recorded in the drill hole furthest west, and appears that the vein improves westward along strike.
"A" vein zone: The depth continuity of the "A" vein was tested by DDH $82-15$. At $150.4-151.3 \mathrm{~m}$. ( 0.9 m . wide) and at $154.6-155.1 \mathrm{~m}$. ( 0.5 m . wide). two veins were intersected that returned 0.042 and 0.098 opt Au respectively.
2) The " 36 " gold-quartz vein trench gave the following values:

| DISTANCE | LOCATION | WIDTH | OPT Ag | OPT Au |
| :--- | :--- | :--- | :--- | :--- |
| 2 m. | footwall | .46 m. | .07 | .41 |
| 2 m. | vein | .17 m. | 3.85 | 34.950 |
| 2 m. | hangingwall | .61 m. | .16 | .852 |
| 10 m. | footwall | .36 m. | .56 | .005 |
| 10 m. | vein | .03 m. | 2.27 | 33.200 |
| 10 m. | hangingwall | .37 m. | .79 | 3.845 |
| 20 m. | footwall | .46 m. | .10 | .142 |
| 20 m. | vein | .03 m. | .03 | .003 |


| 20 m. | hangingwall | .50 m. | .02 | .090 |
| :--- | :--- | :--- | :--- | :--- |
| 30 m. | footwall | .48 m. | .01 | .010 |
| 30 m. | vein | .13 m. | .12 | .328 |
| 30 m. | hangingwall | .37 m. | .10 | .003 |

1. Only 1 out of 13 drill holes (DDH \#82-6) gave results ( 7.550 opt Au over 1.6 ft . or 0.5 m .) which compared to the multi-ounce assays returned from the high grade section of the " 36 " vein trench.
2. The main reason for erratic results appears to be structural, i.e. free gold occurs in scattered pockets in the quartz veins, and in fractures and on shear planes in the adjacent wall rocks (Grove, 1984).
3. A bulk sample was shipped to Trail, B.C. (1983) giving the following results:

| ANALYZED FOR: | SAMPLE \# 1 (223 lbs.) | SAMPLE \# 2 (296 lbs.) |
| :--- | :--- | :--- |
|  | FINES from 5 tons sluiced | GOLD-QUARTZ grab vein \& wall rock |
| GOLD | 4.82 OPT | 18.44 OPT |
| SILVER | 0.60 OPT | 1.25 OPT |
| SILICA | $66.9 \%$ | $89.4 \%$ |

2. Gold bearing quartz mineralogy includes crystalline arsenopyrite, marcasite, rare chalcopyrite, sphalerite, galena and ilmenite.
3. Alteration within the $50-200 \mathrm{~m}$. thick amphibolite unit adjacent to the "Discovery Zone" consists of : extensive quartz, calcite and gypsum veining, spotty to vein-like K-spar zoning, tourmalinization, epidotization, biotitization of hornblende, and magnetite development (Grove, 1984).
4. Spatial relation of gold-quartz and extensive alteration suggest that the amphibolite unit is significant in the localization of gold ore.
5. Drill results reflect structure and give a "hit and miss" account of gold grades due to its scattered distribution as streaks, pockets and fracture infillings.

The 1985 Falconbridge mapping and trenching program identified the following geological features present in the "Discovery Zone":

1. The " 36 " and " $A$ " vein gold-quartz systems trend at azimuth 068 degrees, dipping 70 degrees south.
2. There are numerous 090 trending. steep $S$ dipping dextral strike-slip faults, offset by later dextral and sinstral strike slip micro-faults (several cm . displacement). Gold-quartz veins appear to have emplaced in between the macro and micro faulting events.
3. Gold grades of the main quartz vein and adjacent wall rock increase where there are zones of increased cross and/or diagonal faulting and fracturing
4. Calculation of weighted averages of vein and wall rock from the " A " trench returned a value of 0.094 opt Au over 1.38 m . along a strike length of 11.0 m .
5. Arithmetic averages of quartz vein from the " $A$ " trench gave 0.959 opt $A u$ and wall rock assays averaged 0.028 opt Au.
6. Biotite gneiss (metasandstone) is the dominant host lithology for gold-quartz veins in the "Discovery Zone". Carbonaceous andalusite-staurolite-garnet-biotite schist (metapelite) forms about $15 \%$ of the host lithology for the gold-quartz veins and occurs as narrow, . $1-5.0 \mathrm{~m}$. wide, $\mathrm{E}-\mathrm{W}$ trending bands within the more massive biotite gneiss.
7. Samples identified as carrying visible gold returned assays of $0.001-0.013$ opt Au. These samples included severe dilution from non-mineralized wall rock which would partially explain the low values. The other explanation is that the assay lab did not effectively metallic screen the entire sample to recover the observed native gold.

Bondar-Clegg treated a 42.1 kg . ( 92.8 lbs .) sample from the trench and obtained 8.74 grams Au and 0.46 grams

Ag. The grade of this sample is 13.362 opt Au and 0.70 opt Ag .
In 1987-88, Valentine Gold established a bulk sample pilot mill and cored 43 diamond drill holes, with the following results:
"C" Vein zone:
Depth extension of the "C" vein (located $10-15 \mathrm{~m}$. south of and parallel to the " 36 " vein), defined by a total of 10 drill intercepts are projected on longitudinal section by Gord Allen, outlined an ore reserve calculation of 33,795 tons of 0.429 opt Au (based on a 1.2 m . width) from the " C " vein. The " C " vein is located parallel to and 25-35 m . south of a 100 m . thick, steep south dipping altered amphibolite unit.
"D" vein zone:
The "D" vein is located along the south contact of the altered amphibolite unit. This vein has an inferred strike length of over 500 meters, but no ore reserves have been calculated due to grades which average less than 0.100 opt Au across 1.0 m . in the drill intercepts. The main feature of the " $D$ " vein is a) amphibolite contact and b) faultbound affinity. The " $D$ " vein fault has led to poor recovery and consequent loss of fines as core drills cut this zone.

## " $E$ " vein zone:

The " $E$ " vein was discovered by drilling towards a well defined Au soil anomaly 100 m. north of the " $C$ " vein and 70 m . north of the " $D$ " vein. The " $E$ " vein is hosted by altered amphibolite, and is in close proximity to the gneiss/schist contact ( $10-40 \mathrm{~m}$. to the north) and to a 2 m . wide, cross-cutting, (unit 5) quartz diorite dyke: DDH $87-14$ recorded 0.226 opt Au across a 0.3 m . wide fault zone (@) 49.1-49.4 m.) and 0.033 opt Au across 1.0 m . (@) $78.0-79.0 \mathrm{~m}$.), suggesting the presence of two parallel vein zones.
" $A$ " vein zone:
The "A" vein was intercepted by DDH 87-3 returning 0.046 opt Au across 0.6 m . in a fault zone ( $@ 28.5-29.1 \mathrm{~m}$.). The "A" vein is located 20 m . south of the altered amphibolite contact, thus there is some speculation that it is the continuation of the " $D$ " vein because if we follow the zone west to $87-4.5$ ( 0.136 opt Au over 1.0 m . and 0.031 opt Au across 0.9 m . respectively), these intercepts align with a fault zone adjacent to the altered amphibolite. characteristic of the "D" vein.

The results from drilling in the "Discovery Zone" resulted in an ore reserve calculation on the " C " vein zone:

| CELL \# | HOLE \# | AREA m2 | TONNAGE @1.2 m. | opt Au 1.2 m.wide | Ozs. Au |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 1 | $87-11$ | 1054 | 3630 | 1.580 | 5735 |
| 2 | $88-16$ | 996 | 3430 | 0.087 | 298 |
| 3 | $88-18$ | 1550 | 5338 | 0.001 | 5 |
| 4 | $88-17$ | 1454 | 5008 | 0.041 | 205 |
| 5 | $82-3$ | 748 | 2576 | 0.019 | 49 |
| 6 | $82-6 A$ | 530 | 1825 | 0.149 | 272 |
| 7 | $82-6$ | 530 | 1825 | 3.080 | 7393 |
| 8 | $87-22$ | 980 | 3375 | 0.033 | 111 |
| 9 | $88-14$ | 1185 | 4081 | 0.031 | 127 |
| 10 | $88-15$ | 619 | 2132 | 0.145 | 309 |

Total tonnage $=33,795 \quad$ Total ounces $A u=14,504$
Calculated grade $=0.429$ opt Au (see Appendix C)
In 1988, Vancouver Petrographics Ltd. (Dr.John Payne, Dr Jeff Harris, \& Wendy Sisson) prepared detailed reports on core and trench samples taken from gold bearing quartz/sulphide zones located 2.5 km . east- southeast of Valentine Mountain. A summary of their work is listed below:

1. The main rock types which host ore in the vicinity of the "Discovery Zone" trenches are a) metasandstone, b)
metasiltstone, c) metamudstone. Less abundant host rocks include garnet-bearing schist and a mafic volcanic rock altered to chlorite-carbonate-epidote-actinolite. Several 1-3 m. wide granodiorite/quartz diorite dykes/sills cut the above sequence.
2. Regional deformation resulted in a series of SE trending folds with steeply dipping axial planes and moderately ESE plunging fold axes. Strongly folded, finely banded argillitic schist is crosscut at a high angle by quartz veins up to 10 cm . across. These veins are folded moderately to tightly about axes which may be coaxial to those which had already deformed the schist host rock. This suggests that two pulses of deformation occurred in the same stress field, and were separated by a tensional event during which quartz veins were introduced.
3. Rocks from the "Braiteach Zone" are less deformed, and contain less interbedded argillaceous siltstone/mudstone than the "Discovery Zone".
4. Early quartz veins are distended and smeared out, being locally obliterated in part. Less deformed quartz veins may represent later veins which represent tensional dilation that crosscuts the regional trend of foliation at a small angle.
5. The "Discovery Zone" gold bearing veins contain quartz which has deformed and partly recrystallized to much finer aggregates, with inclusions of quartz with abundant fine grained pyrite and/or pyrrhotite along grain boundaries. Native gold occurs in later, discontinuous veinlets and replacement patches, whose emplacement is moderately controlled by grain borders of deformed quartz. Locally, native gold (and pyrrhotite) occurs in tiny tiny inclusions in coarse grained arsenopyrite.
6. Paragenetic assemblages suggest that during metamorphism, native gold and arsenopyrite were concentrated into shears zones (preferentially in fold closures), and in part into quartz veins formed during early stages of deformation. The presence of K -spar envelopes and euhedral tourmaline suggests a component of hydrothermal contribution to Au-As bearing mineralization. At a later stage, further quartz veins formed, and gold migrated into some of these, possibly near the end of the deformational
event.
Noranda Exploration Ltd. (1989), performed work on the area of the West Leech claims as part of a geological, geochemical, geophysical and diamond drilling program that covered an area $3-5 \mathrm{~km}$. east and west of Valentine Mountain. A summary of Noranda's work is given as follows:
7. Unit 2 gneiss (metasandstone) is divided into 2 sub-units: 2a) meta-greywacke has a better developed schistosity and higher $\%$ of lithic fragments than $2 b$ and is generally darker coloured, $2 b$ ) massive metasandstone light to dark grey colour with minor schistosity with $5 \%$ disseminated biotite. Unit 2 b is very hard to break because it has been partially recrystallized.
8. Unit 1 schist (metapelite) is divided into 5 sub-units: la) phyllite, extremely fine grained and fissile, with abundant sericite and minor biotite on cleavage surfaces as a result of retrograde metamorphism related to movement along proximal faults. 1b) biotite schist, medium grey to black colour, quartz and biotite form light and dark bands $1-3 \mathrm{~mm}$ wide, garnet and/or andalusite/staurolite porphyroblasts are often observed within the biotite schist. 1c) Biotite-garnet schist, similar to 2 b with the addition of $1-10 \mathrm{~cm}$. reddish brown, euhedral garnet crystals. ld) Biotite-garnet-staurolite schist, similar to 1 c with the addition of euhedral staurolite commonly cruxiform. le) Biotite-garnet-staurolite-andalusite schist. similar to 1 d with addition of $1-8 \mathrm{~cm}$., pink andalusite porphyroblasts.
9. Cataclastic textures observed in unit 1 schist consist of angular quartz fragments that have been deformed and flattened in the direction paralleling schistosity as a result of mechanical forces caused by proximal faults and/or overthrusts.
10. Unit 5 Eocene intrusives consist of quartz diorite which occurs as a 2.8 km . long $X 0.1-0.6 \mathrm{~km}$. wide sill feature that widens out in Walker Creek. This quartz diorite has numerous $1-3 \mathrm{~m}$. wide aplite sills with localized $1-3 \mathrm{~mm}$ wide orange-red colour, euhedral garnets.
11. Unit 6 pegmatite is leucocratic with calcic feldspar, sericite, quartz and localized tourmaline crystals up to 10 cm . in length. Pegmatite dykes and sills range from $0.1-1.5 \mathrm{~m}$. width and occur in the Walker Creek area.
12. $1-5 \mathrm{~cm}$. wide parasitic " S " and " $Z$ " folds were observed in schist layers and quartz veinlets, which serve as a guide to direction of fold hinges and indicate a major E-W trending, gentle east plunging anticline along the axis of Valentine Mountain Ridge.
13. Quartz veins occur throughout all rock units mapped and vary from 0.05 to 2.0 m . width. They are generally milky white "bull" quartz with occasional subhedral crystals. Limonite is frequently observed, minor fine
grained pyrite and lesser pyrrhotite occurs as fracture coatings in quartz. Arsenopyrite crystals were observed in quartz veins and wall rock. There appears to be an association of arsenopyrite and gold bearing quartz veins.
14. Gold bearing zones within the amphibolite are associated with pyrrhotite aggregates (forming $3 \%$ of total volume), however not all pyrrhotite zones contain gold mineralization.
15. Quartz veins hosted in schist (metapelite) generally parallel well developed schistosity. In gneiss (metasandstone), quartz veins $0.05-0.1 \mathrm{~m}$. wide cut sandstone beds at angles of $30-45$ degrees, and bedding is at low angles to foliation.
16. Variation in quartz veining between various lithologic units reflects the units themselves, i.e. quartz vein material is of metamorphic origin with relatively minor influence of hydrothermal activity. Phyllites contain the least quartz and metasiltsones contain the most quartz, with amphibolite and metasandstone containing relatively medium amounts of quartz.
17. Gold bearing quartz veins are predominantly hosted by metasandstone. The " B " quartz veins are translucent to transparent and commonly light orange in colour and the "C" vein is generally grey black in colour. Gold mineralization occurs within the vein material as well as the adjacent wall rock.
18. Magnetometer data shows a strong, narrow, 120 trending dipolar (high and low) feature east of L 18100 E . In the area of the "Discovery Zone" this feature appears as a broad mag high over the amphibolite unit (probably caused by increased magnetite and/or pyrrhotite) and an adjacent mag low to the north which may reflect massive metasandstone. West of 17600 E , a similar, narrow magnetic response has a more subtle character. The pronounced background and source shift hints at a possible fold axis occurring on L 17600 E at stn. 20750 N (also observed by IP data).
19. IP data from the west "Discovery Zone" indicates a chargeability/resistivity high and coincident Au soil geochem anomaly between L $20600 \mathrm{E} / 20087 \mathrm{~N}$ and L $19600 \mathrm{E} / 20137 \mathrm{~N}$. Core drilling this target between L 19800 E and L 19900 E proved to be successful in identifying two gold bearing zones localized along the contact of mixed metapelite/metasandstone and altered amphibolite. DDH 89-24 intersected 2.301 opt Au across 0.3 m . @ $59.1-59.5 \mathrm{~m}$.
20. IP data from " $B N$ " and "Braiteach" zones identified a similar IP chargeability/resistivity high and coincident Au soil geochem anomaly between L 17150 E to L 18000 E located parallel and $50-125 \mathrm{~m}$. north of the baseline.
21. "Braiteach Zone" DDH 89-20 and 89-21 were collared on the west projection of Au intercept 0.136 opt Au across 3.0 m . in DDH 88-12. DDH 89-20 cut 17.8 m . overburden, the following 99.1 m . cored through amphibolite with 5-7\% quartz as stringers and veinlets with no significant Au values. Increased quartz, with $3-4 \%$ pyrite, pyrrhotite and chalcopyrite occur at $62.8-63.8 \mathrm{~m}$. Fault breccia and gouge with $2-3 \%$ pyrite and pyrrhotite was cut at $76.5-77.8 \mathrm{~m}$. An increase in biotite rich layers occurs at $77.8-84.4 \mathrm{~m}$. with up to $4 \%$ disseminated pyrite, pyrrhotite and chalcopyrite. DDH $89-21$ had 25 m . of overburden, followed by 86.1 m . of amphibolite. An increase in biotite rich layers with $4 \%$ disseminated pyrite, pyrrhotite and chalcopyrite occurs at $75.1-82.6 \mathrm{~m}$. Fault gouge and shearing with $2-3 \%$ pyrite occurs at $93.5-94.7 \mathrm{~m}$. and $103.3-109.0 \mathrm{~m}$.
22. "Discovery' West" DDH 89-22,23,24 were drilled to intersect an $\mathbb{P}$ target of high chargeability and resistivity which coincides with anomalous Au geochem and is interpreted as being the west extension of the "C" and " D " vein systems. DDH 89-22 cut 3 quartz veins. the largest being 20 cm ., with mineralization consisting of $10 \%$ pyrite and $1 \%$ pyrrhotite. The " $D$ " vein system located 4 m . above the metasandstone/amphibolite contact returned 740 ppb Au over 1.5 m . Within the amphibolite at $148.3-149.3 \mathrm{~m}$. there is a 1.0 m . interval with visible gold that returned 0.027 opt Au. DDH $89-23$ cut two quartz veins, the largest being 0.35 m . wide with $1-2 \%$ pyrite and $1 \%$ pyrrhotite which are interpreted as the " C " vein system was intersected at 56.9-58.4 m . returning 0.040 opt Au across 1.5 m . width and the " D " vein at $106.5-108.0 \mathrm{~m}$. assaying 0.028 opt Au across 1.5 m . DDH $89-24$ cut 4 quartz veins, the largest being 0.41 m . wide, with $1-2 \%$ pyrite and less than $1 \%$ pyrrhotite. DDH $89-24$ intersected 2.301 opt Au across 0.4 m . @ $59.1-59.5 \mathrm{~m}$. depth. This intersection is situated 2.2 m . above the metasandstone/amphibolite contact and is interpreted as the " D " vein system. At $69.0-70.0 \mathrm{~m}$. depth, DDH $89-24$ cut a biotite rich layer with $0.5 \%$ euhedral garnet porphyyyblasts, $1-2 \%$ pyrite and $1 \%$ pyrrhotite which returned assay values of 0.087 opt Au across 1.0 m . At a depth of 129 m ., DDH 8924 intersected a 5 m . wide band of $2-3 \%$ pyrrhotite blebs (with assay values up to 0.013 opt Au across 0.4 m .), and the projected P chargeability high correlates with this mineral zone.
23. Detailed mapping of the "BN Zone" shows the gold-bearing quartz vein systems are predominantly hosted by gneiss (metasandstone, unit 2), typically with $10-20 \%$ biotite and exhibiting "woodgrain texture". There is
some interbedded biotite-garnet-staurolite schist (unit 1) at L $17600 \mathrm{E} / 20935 \mathrm{~N}$ where there are $5-25 \mathrm{~m}$. wide quartz vein swarms along the contacts of unit $1 \& 2$. At the southern edge of the Au soil anomaly is a massive, chlorite altered amphibolite (unit 3).
24. A total of 41 rock chip samples were taken with the following highlights:

| SAMPLE \# | Au ppb | As ppm | WIDTH m. |
| :--- | :--- | :---: | :--- |
| 59655 | 5950 | 2219 | 0.03 |
| 58559 | 5530 | 3 | 0.05 |
| 59662 | 3960 | 1730 | 0.02 |
| 59660 | 3850 | 573 | 0.02 |

19) "Braiteach Zone" trench sampling is summarized as follows: a) Zone \#loutcrops in a road cut on J-6 logging road where specks of visible gold were found in limonitic, vuggy quartz hosted in a hydrothermal alteration zone within metasandstone. Out of 5 channel, 3 panel and 1 grab sample, the highest geochemical value returned was 390 ppb Au and 538 ppm As. b) Zone \#2 is located 55 m . north of the baseline on L 16800 E where a 0.08 m . wide $\mathrm{E}-\mathrm{W}$ trending quartz vein was channel sampled in 11 locations along the outcrop, returning a high value of 740 ppb Au , and 875 ppm As. c) Zone \#3 is 80 m . WNW of zone \#2 and consists of a main E-W trending, steep north dipping quartz vein with $10-20 \%$ quartz stringers 1 m . from the vein, which decrease with distance from the main vein. Results produced a high value of 150 ppb Au and 1063 ppm As. d) 8 chip samples from Zones \#4-6 returned values up to 159 ppb Au and 25 ppm As.
1. Rock chip sampling on the Peg and Bo Claim Groups (Walker Creek area), returned $0.67 \% \mathrm{Cu}$ across 0.2 m . and $0.28 \% \mathrm{Cu}$ across 0.1 m .
2. Recommendations for further work include exploration and development of low tonnage, high grade ores shoots along the 7 km . strike length which is known to host gold-bearing quartz vein systems.

### 6.0 GENERAL GEOLOGY

L.H. Fairchild (1979), completed a structural and metamorphic analysis of the Leech River Group in partial fulfillment of the requirements for a Masters degree at the University of Washington. Most of his work focused on the Valentine Mountain area. A point form summary of his study is listed below:

1. Leech River Group consist of greenschist to amphibolite facies gneiss and schist metamorphic rocks Their protolith rock types listed in order of abundance are: a-pelite (shale), b-sandstone, c-volcanic, d-chert, e-conglomerate.
2. Two Eocene deformational events, separated by a static period of unknown duration, consisted of fragmentation, rotation and regional shortening resulted in axial-plane cleavage, linear structures and coaxial mesoscopic parasitic folds about east-plunging fold axes.
3. Amphibolite facies metamorphism resulted in biotite-garnet and staurolite-andalusite successively introduced by continuous reaction. which extended from the end of the first phase of deformation into the second phase.
4. Greenschist facies metamorphism results in muscovite-chlorite-quartz assemblages.
5. San Juan, Clapp Ck. And Leech R. faults are E-W trending, steeply dipping, relatively straight zones of regional sub-parallel fault traces. The Leech R. fault is interpreted to be a left-lateral strike-slip fault zone active during the Eocene-Oligocene-Miocene.
6. In the Jordan R. valley southwest of Valentine Mountain, $10-50 \mathrm{~m}$. wide coarse-grained biotite orthogneiss to grandioritic sills and related pegmatite dykes are concordant with regional schistosity.
7. In both mesoscopic and macroscopic folds throughout the Leech R. Group, metasandstone and metavolcanic units behave competently and pelitic rocks, which typically filled-in between competent bodies, behaved in a more ductile fashion. This competency contrast indicates that buckling, rather than homogenous flattening or slip-folding, was the dominant mechanism of folding.
8. Isoclinal F1 structures are refolded by F2 resulting in cylindrical folds which are generally asymmetric-open in the north study area, and progressively symmetric-closed to the south.

## 8. Dominant foliation in the study area is steeply dipping, F2 axial planar.

Gay A. Wingert (1984), completed a B.Sc. thesis for U.B.C. entitled Structure and Metamorphism of the Valentine Mountain Area, SW Vancouver Island, B.C. Her study is summarized as follows:

1. The Leech R. Fm. underwent 2 stages of deformation and metamorphism which correlates with 2 stages of intrusion. Evidence for polymetamorphism is defined by distribution of staurolite and andalusite, indicating there was a primary metamorphic event which reached temperatures high enough to produce andalusite and a secondary metamorphic event of lower grade which only produced staurolite.
2. The second stage of metamorphism began prior to the second stage of deformation.
3. The final stages of igneous activity (presumed to have occurred in Late Eocene to Early Oligocene) coincide with dextral strike-slip movement along the Leech R. Fault. Retrograde alteration consists of staurolite \& andalusite partially replaced by sericite-chlorite-quartz, gamets are crushed and altered to chlorite, and biotite and hornblende appears kinked and boudinaged. Late stage retrograde alteration is associated with late stage faulting and intrusive activity which produced dykes \& sills, and gold-bearing quartz (Appendix D).
4. The axial trace of a regional E-W trending anticline fold axis is centered on Valentine Mountain.
5. Walker Creek is an axis for an E-W trending anticline fold axis

The B.C. Geological Survey Branch and the G.S.C. prepared a paper titled Andalusite in British Columbia- New Exploration Targets (Dr. G. Simandl, et.al., 1994)). There was a chapter of this paper devoted to the Leech River Area with specific reference to potential economic deposits within the subject property (Appendix A). A point form summary of this paper is given below:

1. Typical grades of primary "hard rock" andalusite ores vary from 7 to $20 \%$. Typical production capacities of individual mines vary from 25,000 to 65,000 tonnes per year.
2. The coarser the crystals, the easier it is to upgrade the ore. Garnet and staurolite typically coexist with andalusite and where grades and textures permit, they are recovered as byproducts.
3. Most of the area east of Valentine Mountain contains andalusite strongly retrograded to either mica and staurolite or mica and chlorite. The retrograde alteration appears to be strongest in the "Discovery Zone"
4. The degree of retrograde alteration diminishes west of Jordan River where an E-W trend is especially interesting and may host zones of economic andalusite-garnet-staurolite.
5 . There is a 6 m . wide zone of $7 \%$ andalusite bearing schist surrounded by a felsic intrusion.

The following legend is used to described rock types of the Leech River Group and younger intrusiuve rocks which underlie the claim group:

EOCENE AND YOUNGER? INTRUSIVE ROCKS
6 Pegmatite, Leucocratic dykes and sills
5 Quartz diorite. minor granodiorite, granite
5 a Aplitic dykes and sills (leucocratic, fine grained)
TRIASSIC TO CRETACEOUS? LEECH R. GROUP METAMORPHIC ROCKS
4 Phyllite (finer grained and better cleaved than schist)
3 Amphibolite (metavolcanic)
3a Tuff
3b Flow
3c Pervasive chlorite alteration
2 Gneiss (metasandstone)

## 2a "Dirty"- greywacke

2b "Clean"-metaquartzite
1 Schist (metapelite)
1a Biotite schist
lb Biotite-garnet schist
1c Biotite-garnet-staurolite schist
1d Biotite-garnet-staurolite-andalusite schist

### 7.0 1997 FIELDWORK

### 7.1 METHODS AND PROCEDURES

A $400 \times 800 \mathrm{~m}$. ( 32 ha .) area of the central portion of the BPEX 1 claim was surveyed and mapped using hip chains and compasses in order to determine outcrop exposure, trench location and creek locations. A total length of 44.7 metres of trenching (average width one metre and depth of 0.5 metres) was excavated using a Pionjar gas powered drill and $40 \%$ forcite stick powder. All trenches were excavated along outcrop exposures and soil profiles were not disturbed. The trenches were mapped and sampled taking a total of 97 two kilogram rock chip samples using a rock hammer. A total of 7 additional rock chip samples were taken using rock hammers while mapping outcrops.. A total of 63 soil samples were taken from a depth of 0.3-0.5 metres using a grubhoe and placed into marked kraft envelopes. Rock and soil samples were shipped to Acme Analytical Labs, Vancouver, B.C. for Au assay and 30 element ICP geochemical analysis (Appendix A).

### 7.2 PROPERTY GEOLOGY

The following litholgies are recognized in the area of detailed mapping collectively known as the BN Zone (Fig. 4).

## TRIASSIC TO CRETACEOUS? LEECH R. GROUP METAMORPHIC ROCKS

## 3 Amphibolite (metavolcanic)

2a "Dirty"- greywacke
2b "Clean"-metaquartzite
1a Biotite schist
The BN Zone is located 0.6 kilometres south of Valentine Mountain and 3.0 kilometres west of the Discovery Zone. Previous IP and HLEM geophysical surveys performed across the BN Zone have shown increased chargeability and conductivity which coincides with a sulphide bearing horizon (Figure 4). Adjent to the sulphide zone is a highly siliceous zone that is concurrent with a resistivity geophysical response (Noranda Geophysical Report, 1989). Extensive soil sampling by Valentine Gold in 1987 identified thre BN Zone as the strongest gold geochemical response within the 3,800 hectare claim group.

Detailed mapping of the "BN Zone" shows the gold-bearing quartz vein systems are predominantly hosted by gneiss (metasandstone, unit 2), typically with $10-20 \%$ biotite and exhibiting "woodgrain texture". There is some interbedded biotite-garnet-staurolite schist (unit 1) at $\mathrm{L} 17600 \mathrm{E} / 20935 \mathrm{~N}$ where there are $5-25 \mathrm{~m}$. wide quartz vein swarms along the contacts of unit $1 \& 2$. At the southern edge of the Au soil anomaly is a massive ( $75-100$ metre wide), chlorite altered amphibolite (unit 3) which also occurs as a steeply dipping 2-8 metre wide band trending

120 degrees through the lower centre of the map area (Figure 4).
A total of 41 rock chip samples were taken by Noranda in 1989 with the following highlights:

| SAMPLE \# | Au ppb | As ppm | WIDTH m. |
| :--- | :--- | :---: | :--- |
| 59655 | 5950 | 2219 | 0.03 |
| 58559 | 5530 | 3 | 0.05 |
| 59662 | 3960 | 1730 | 0.02 |
| 59660 | 3850 | 573 | 0.02 |

The location of the 41 samples listed above is roughly in the same area of detailed mapping and trenching (Figure 4). Geological mapping of these quartz-sulphide veins show there is a dominant 090-110 degree bearing with steep north dips. Fine grained chlorite and disseminated/fracture filling pyrrhotite is associated with these quartz veins. From a total of 97 trench samples ( $0.1-0.7$ metre width), and 7 prospecting rock chip samples (0.1-4.5 metre width) the following top-ranking results were obtained:

| SAMPLE <br> \# | WIDTH m. | DESCRIPTION | Au OPT |
| :--- | :--- | :--- | :---: |
| $97-A R-5$ | 4.5 | $3-5 \%$ disseminated pyrrhotite, $1 \%$ chlorite-quartz veinlets and <br> stringers | 0.173 |
| 280 | 0.5 | $10 \%$ quartz as $1-15 \mathrm{~cm}$ wide veins, $1 \%$ pyrrhotite | 0.095 |
| $268-272$ | 2.7 | $12-25 \%$ quartz as $1-25 \mathrm{~cm}$ wide veins, $1 \%$ pyrrhotite | 0.024 |

### 7.3 GEOCHEMISTRY (SOLL SAMPLING)

The grid was sampled at 25 metre intervals along N-S grid lines spaced 100 metres apart. From a total of 63 samples the range of values are as follows:

| Description | Highest <br> value Au ppb | Lowest value <br> Au ppb | Average <br> value Au ppb | Highest <br> value As <br> ppm | Lowest value <br> As ppm | Average <br> value As <br> ppm |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Value | 409 | 1 | 24 | 329 | 10 | 62 |

### 8.0 CONCLUSION \& RECOMMENDATION

There is potential to host economic gold bearing metal mineralization on the Valentine claims based on results from current and previous fieldwork. Geological mapping of the BN Zone has identified gold bearing quartz vein swarms with sparse sulphides localized along a WNW trending silicified metasandstone unit. About 75 metres south of the silicified zone is a 4-12 metre wide zone of disseminated pyrrhotite with sparse quartz veining that returned assay values of $0.173 \mathrm{oz} / \mathrm{t}$ Au across 4.5 metres (sample \# $97 \mathrm{AR}-5$ ). Since this high sulphide zone correlates with laterally extensive positive IP chargeability and EM conductivity, the BN Zone is considered a high priority exploration target. A program of geological mapping, rock chip sampling and core drilling is recommended to assess precious metal values associated with the quartz vein swarm and sub-parallel sulphide zone present in the BN Zone.

A field program of 2,000 feet of core drilling supported by 1 geologist and 2 geotechnicians for a period of 30 days is recommended on the BN Zone within theValentine claims. Approximately five to eight 300-500 foot deep core drill holes inclined at 45 degree dip should be collared $50-65$ metres north of the quartz vein swarm target and the sulphide zone target at an azimuth of 180 degrees.

An approximate budget for this program including mobilzation, support (food, fuel, accommodations), assays, management, report etc. is $\$ 125,000$. Contingent on the results of this intial program, the BN Zone may require further definition drilling which would involve 3,000-5,000 additional feet of core drilling.

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Wingert, G.A. (1984): Structure and Metamorphism of the Valentine Mountain Area, SW Vancouver Island

## CERTIFICATE

I, Andris Kikauka, of Vancouver, B.C., hereby certify that;

1. I am a graduate of Brock University, St. Catharines, Ont., with an Honours Bachelor of Science Degree in Geological Sciences, 1980.
2. I am a Fellow in good standing with the Geological Association of Canada.
3. I am registered in the Province of British Columbia as a Professional Geoscientist.
4. I have practised my profession for eighteen years in precious and base metal exploration in the Cordillera of Western Canada and South America, and for three years in uranium exploration in the Canadian Shield.
5. The information, opinions, and recommendations in this report are based on fieldwork carried out in my presence on the subject properties and on published and unpublished literature and maps.
6. I have no direct or indirect interest with Beau Pre Explorations Ltd \& the subject property.
7. I consent to the use of this report in a Prospectus or Statement of Material Facts for the purpose of private or public financing.

Andris Kikauka, P. Geo.,


June 16, 1998

ITEMIZED COST STATEMENT- BLAZE 2 CLAIM (PART OF THE WEST LEECH CLAIM GROUP), APRIL 24 TO DEC. 31, 1997
VICTORIA MINING DIVISION, NTS 92 B 12/W
FIELD CREW:
Andris Kikauka, Geologist 10 days ..... \$ 2,000.00
Simon Salmon, Geotechnician, 10 days ..... 1,750.00
Jamie Pincombe, Geotechnician, 4 days ..... 600.00
John Telegus, Geotechnician, 2 days ..... 300.00
FIELD COSTS:
104 rock samples, Au assay and 30 element ICP ..... 2,912.00
63 soil samples, Au geochem and 30 element ICP ..... 882.00
Truck rental, 10 days ..... 885.00
Report ..... 260.00



-100 aU by fire assay from 1 a.t. SAMPLE. dUpaU: AU DUPLICATED fROM - 100 MESIT. +100 AU - TOTAI SARPLE FIRE ASSAY.

- SAMPLE TYPE: P1 ROCK P2 TO P3 SOIL



IC - . 500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1\%, AG > $30 \mathrm{PPM} \& \mathrm{AU}>1000 \mathrm{PPB}$


$\qquad$


Applied Mine Technologies Inc. PROJECI VALENTINE/2960 $\mathrm{FIHE} \# 97-1784 \quad$ Page 2


Sample tyoe: ROCK .

Samole





|  |  |  | $7$ | $\mathrm{pp} 1$ | $7$ <br> ed | M | $1$ |  | $\begin{gathered} 1 \\ \text { chno } \end{gathered}$ | ogi | ies | I |  |  | ) ${ }^{\text {a }}$ ( | . | (i) |  | 1.1 | It |  | 6.1 |  |  |  |  | ?106 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SAMPLE\# | Mo ppm | Cu ppin | Pb ppm | $\begin{array}{r} \mathrm{Zn} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Ag} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{gathered} \mathrm{Ni} \\ \mathrm{ppm} \end{gathered}$ | Co ppm | Mn ppm | $\begin{aligned} & \mathrm{Fe} \\ & \% \end{aligned}$ | $\begin{array}{r} \mathrm{As} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{U} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Au} \\ \text { ppin } \end{array}$ | $\begin{array}{r} \text { Th } \\ \text { ppin } \end{array}$ | $\begin{gathered} \mathrm{Sr} \\ \mathrm{ppin} \end{gathered}$ | $\begin{array}{r} \text { Cd } \\ \text { ppin } \end{array}$ | $\begin{array}{r} \mathrm{Sb} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Bi} \\ \mathrm{ppin} \end{array}$ | $\begin{array}{r} V \\ \text { ppan } \end{array}$ | $\begin{gathered} \mathrm{Ca} \\ \% \end{gathered}$ | $\begin{aligned} & P \\ & \% \end{aligned}$ | $\begin{array}{r} \text { La } \\ \text { pps } \end{array}$ | $\begin{gathered} \mathrm{Cr} \\ \text { ppill } \end{gathered}$ | $\begin{array}{r} M g \\ \% \end{array}$ | $\begin{array}{r} \text { Ba } \\ \text { ppan } \end{array}$ | $\begin{gathered} \mathrm{Ti} \\ \% \end{gathered}$ | $\begin{array}{r} \mathrm{B} \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Al} \\ \% \end{gathered}$ | $\begin{gathered} \mathrm{Na} \\ \% \end{gathered}$ | $\begin{aligned} & K \\ & \% \end{aligned}$ |  | Au* ppb |
| L17550E 20950N | 1 | 5 | 5 | 27 | $<.3$ | 6 | 6 | 134 | 1.78 | 148 | 11 | $<2$ | 3 | 5 | <. 2 | $<2$ | 7 | 51 | . 07 | . 013 | 5 | 17 | . 30 | 32 | . 16 | 3 | 1.01 | . 01 | . 06 | $<2$ | 14.8 |
| L.17550E 20925N | 1 | 7 | $<3$ | 36 | <. 3 | 9 | 4 | 169 | 2.56 | 36 | $<5$ | $<2$ | 3 | 5 | . 3 | $<2$ | 10 | 67 | . 07 | .034 | 4 | 31 | . 41 | 39 | . 19 | 4 | 1.81 | . 01 | . 13 | 2 | 13 |
| L17550e 20900N | $<1$ | 3 | $<3$ | 19 | < 3 | 5 | 2 | 110 | 1.57 | 43 | 7 | $<2$ | 2 | 4 | . 2 | $<2$ | 4 | 63 | . 06 | . 014 | 5 | 20 | . 23 | 42 | . 15 | <3 | . 74 | . 01 | . 08 | $<2$ | 10 |
| L17550E 20875N | 1 | 4 | $<3$ | 36 | <. 3 | 7 | 4 | 184 | 2.33 | 60 | $<5$ | <2 | 4 | 8 | <. 2 | <2 | 4 | 69 | . 14 | . 020 | 4 | 20 | . 39 | 58 | . 19 | $<3$ | 1.21 | . 01 | . 11 | 2 | 5 |
| L17550e 20850N | 1 | 3 | 5 | 21 | <. 3 | 6 | 3 | 117 | 2.14 | 102 | 17 | <2 | 5 | 7 | $<.2$ | 2 | $<2$ | 64 | . 07 | .017 | 3 | 17 | . 25 | 41 | . 18 | <3 | . 91 | . 01 | . 07 | 2 | 7 |
| L.17550E 20825N | $<1$ | 2 | $<3$ | 10 | <. 3 | 3 | 1 | 40 | . 95 | 166 | 8 | $<2$ | 3 | 5 | $<.2$ | $<2$ | 8 | 53 | . 05 | . 006 | 6 | 10 | . 11 | 19 | . 06 | $<3$ | . 58 | . 01 | . 05 | $<2$ | 12 |
| Li7550e 20800N | 1 | 6 | 3 | 18 | <. 3 | 5 | 2 | 82 | 2.37 | 85 | 5 | 2 | 5 | 6 | <. 2 | 4 | 9 | 75 | . 07 | . 019 | 5 | 21 | . 26 | 26 | . 15 | $<3$ | 1.28 | . 01 | . 07 | $<2$ | 7 |
| L.17550E 20775N | 1 | 1 | 5 | 21 | <. 3 | 4 | 2 | 30 | 2.20 | 22 | $<5$ | $<2$ | 4 | 5 | . 2 | 2 | 6 | 85 | . 05 | . 025 | 3 | 18 | . 27 | 28 | . 25 | <3 | . 97 | . 01 | . 06 | $<2$ | 1 |
| L17550E 20750N | $<1$ | 1 | 3 | 22 | <. 3 | 6 | 2 |  | 2.14 | 27 | $<5$ | <2 | 2 | 5 | $<.2$ | $<2$ | 13 | 81 | . 05 | . 020 | 4 | 19 | . 30 | 33 | . 21 | 3 | 1.00 | . 01 | . 08 | $<2$ | $<1$ |
| L17550E 20725N | <1 | 5 | $<3$ | 26 | <. 3 | 7 | 3 | 116 | 2.36 | 37 | $<5$ | <2 | 6 | 6 | <. 2 | 2 | $<2$ | 76 | . 05 | . 025 | 4 | 23 | . 37 | 37 | . 19 | <3 | 1.52 | . 01 | . 08 | $<2$ | 10 |
| L17600E 20950N | 1 | 10 | <3 | 29 | < 3 | 9 | 4 | 184 | 2.41 | 58 | $<5$ | $<2$ | $<2$ | 7 | <. 2 | $<2$ | 2 | 68 | . 07 | . 033 | 3 | 27 | . 40 | 35 | . 19 | $<3$ | 1.98 | . 01 | . 08 | 2 | 14 |
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| RE L17600E 2092Sh | 1 | 6 | $<3$ | 25 | <. 3 | 8 | 3 | 148 | 2.40 | 108 | $<5$ | $<2$ | 3 | 8 | <. 2 | <2 | 5 | 85 | . 06 | . 026 | 4 | 25 | . 48 | 56 | . 22 | 3 | 1.20 | . 01 | . 17 | 2 | 70 |
| L17600E 20900N | 1 | 4 | $<3$ | 25 | <. 3 | 6 | 2 | 162 | 1.76 | 16 | 5 | $<2$ | $<2$ | 4 | . 5 | 4 | $<$ ? | 88 | . 05 | . 011 | 3 | 28 | . 52 | 56 | . 24 | <3 | 1.02 | . 01 | . 22 | $<2$ | 8 |
| L17600E 20875N | 1 | 10 | 5 | 47 | <. 3 | 10 | 8 | 219 | 2.61 | 116 | $<5$ | $<2$ | 6 | 11 | . 1 | 2 | 2 | 69 | .1/4 | . 019 | 4 | 25 | . 38 | 66 | . 17 | 3 | 1.83 | . 01 | . 07 | 3 | 10 |
| L17600e 20850n | 1 | 7 | <3 | 33 | $<.3$ | 10 | 4 | 139 | 2.81 | 62 | $<5$ | $<2$ | 5 | 8 | . 3 | $<2$ | 16 | 71 | . 11 | . 016 | 4 | 36 | . 41 | 55 | . 18 | 3 | 1.40 | . 01 | . 10 | <2 | 379 |
| L17600E 20825N | 1 | 6 | 4 | 28 | < 3 | 11 | 4 | 166 | 2.29 | 49 | < 5 | <2 | 2 | 5 | <. 2 | < 2 | 6 | 72 | . 10 | . 013 | 4 | 34 | . 45 | 45 | . 18 | 3 | 1.08 | . 01 | . 15 | <2 | 129 |
| L17600E 20800N | 1 | 15 | $<3$ | 40 | <. 3 | 13 | 6 | 186 | 2.67 | 129 | 5 | $<2$ | 3 | 6 | . 5 | $<2$ | 2 | 67 | . 10 | . 021 | 8 | 35 | . 56 | 49 | . 17 | $<3$ | 2.58 | . 01 | . 09 | 2 | 20 |
| L17600E 20775N | 1 | 24 | $<3$ | 44 | < 3 | 19 | 7 | 202 | 3.17 | 188 | $<5$ | $<2$ | 5 | 8 | <. 2 | $<2$ | 18 | 73 | . 10 | . 026 | 6 | 52 | . 72 | 49 | . 20 | <3 | 3.59 | . 01 | . 10 | $<2$ | 344 |
| L17600E 20750n | 1 | 2 | 3 | 19 | <. 3 | 5 | 2 |  | 1.44 | 43 | $<5$ | $<2$ | 4 | 5 | . 4 | $<2$ | $<2$ | 87 | . 05 | . 017 | 7 | 11 | . 19 | 37 | . 18 | 3 | . 68 | . 01 | . 08 | <2 | 7 |
| L17600E 20725N | 1 | 6 | $<3$ | 30 | . 3 | 8 | 4 |  | 2.45 | 63 | $<5$ | $<2$ | 6 | 5 | <. 2 | $<2$ | 9 | 72 | . 05 | . 020 | 5 | 25 | . 35 | 35 | . 20 | <3 | 1.87 | . 01 | . 07 | 2 | 7 |
| L17650E 20975N | 1 | 7 | 5 | 32 | <. 3 | 9 | 5 |  | 2.61 | 31 | 6 | <2 | 8 | 6 | . 4 | <2 | 4 | 72 | . 07 | . 029 | 4 | 29 | . 42 | 40 | . 24 | <3 | 2.01 | . 01 | . 09 | 2 | 1 |
| L17650E 20950N | 1 | 3 | 5 | 22 | <. 3 | 6 | 4 | 136 | 1.81 | 10 | $<5$ | $<2$ | $<2$ | 6 | . 2 | <2 | $<2$ | 64 | . 07 | . 013 | 4 | 18 | . 31 | 30 | . 22 | <3 | . 96 | . 01 | . 05 | <2 | 3 |
| L. 17650 E 20925 N | 1 | 7 | 4 | 36 | <. 3 | 10 | 5 | 221 | 2.39 | 58 | < 5 | <2 | 3 | 9 | . 2 | 2 | $<2$ | 68 | . 11 | . 034 | 4 | 22 | . 48 | 38 | . 21 | 3 | 1.34 | . 01 | . 08 | 2 | 1 |
| L17650E 20900N | 1 | 3 | $<3$ | 23 | <. 3 | 6 | 5 | 292 | 2.06 | 51 | $<5$ | $<2$ | 4 | 9 | <. 2 | $<2$ | 2 | 67 | . 08 | . 023 | 3 | 15 | . 20 | 26 | . 18 | <3 | . 91 | . 01 | . 04 | 4 | 6 |
| L17650E 20875N | $<1$ | 2 | <3 | 18 | < 3 | 5 | 3 |  | 1.29 | 30 | $<5$ | $<2$ | 2 | 5 | <. 2 | $<2$ | 7 | 43 | . 06 | . 009 | 3 | 11 | . 23 | 33 | . 13 | $<3$ | . 64 | . 01 | . 06 | $<2$ | 16 |
| L17650E 20850N | 1 | 1 | 5 | 14 | <. 3 | 5 | 2 |  | 2.07 | 63 | $<5$ | <2 | 2 | 4 | . 3 | <2 | 10 | 79 | . 05 | . 016 | 4 | 17 | . 18 | 27 | . 22 | <3 | . 70 | . 01 | . 05 | <2 | 8 |
| L17650E 20825N | 1 | 13 | 3 | 42 | . 3 | 17 | 23 | 252 | 2.84 | 85 | $<5$ | <2 | 2 | 7 | . 4 | <2 | $<2$ | 65 | . 14 | . 048 | 5 | 32 | . 41 | 50 | . 18 | 3 | 2.35 | . 01 | . 10 | 2 | 8 |
| L17650E 20800N | $<1$ | 4 | $<3$ | 17 | <. 3 | 7 | 3 |  | 2.30 | 64 | 10 | <2 | <2 | 4 | . 3 | $<2$ | <2 | 78 | . 05 | . 013 | 4 | 28 | . 33 | 27 | . 20 | <3 | . 96 | . 01 | . 08 | <2 | 14 |
| L17650E 20775N | 1 | 6 | 3 | 21 | <. 3 | 10 | 4 | 109 | 3.10 | 55 | $<5$ | <2 | 3 | 5 | . 5 | 4 | 4 | 107 | . 05 | . 015 | 5 | 34 | . 43 | 34 | . 25 | <3 | 1.77 | . 01 | . 07 | <2 | 6 |
| L17650E 20750n | 1 | 5 | 3 | 16 | < 3 | 6 | 2 |  | 2.03 | 189 | $<5$ | $<2$ | $<2$ | 5 | $<.2$ | $<2$ | 3 | 56 | . 05 | . 015 | 6 | 17 | . 23 | 21 | . 11 | 3 | 1.32 | . 01 | . 04 | 2 | 30 |
| L17650E 20725N | $<1$ | 1 | 4 | 20 | <. 3 | 5 | 2 | 104 | 1.64 | 37 | $<5$ | $<2$ | 3 | 4 | <. 2 | 5 | <2 | 67 | . 04 | . 015 | 6 | 18 | . 30 | 36 | . 19 | $<3$ | 1.05 | . 01 | . 10 | $<2$ | 35 |
| L17650E 20700N | 1 | 11 | $<3$ | 25 | $<.3$ | 8 | 6 |  | 2.26 | 64 | $<5$ | <2 | 2 | 11 | <. 2 | <2 | <2 | 47 | . 11 | . 122 | 8 | 26 | . 22 | 48 | . 11 | <3 | 4.16 | . 01 | . 07 | 2 | 28 |
| L17700E 20975N | 2 | 8 | 3 | 35 | <. 3 | 9 | 5 |  | 2.59 | 66 | $<5$ | $<2$ | 3 | 6 | . 2 | $<2$ | 16 | 69 | . 06 | . 030 | 5 | 25 | . 38 | 44 | . 20 | <3 | 1.65 | . 01 | . 11 | 2 | 2 |
| L17700E 20950n | 1 | 6 | 4 | 27 | <. 3 | 8 | 4 | 124 | 2.26 | 11 | $<5$ | $<2$ | 5 | 7 | . 2 | 2 | <2 | 70 | . 07 | . 028 | 3 | 22 | . 31 | 36 | . 15 | <3 | 1.70 | . 01 | . 08 | $<2$ | $<1$ |
| SIANDARD C3/AU-S | 25 | 68 | 33 | 148 | 5.3 | 35 | 12 | 736 | 3.27 | 55 | 17 | 3 | 22 | 30 | 23.6 | 23 | 25 | 82 | . 61 | . 090 | 17 | 160 | . 65 | 147 | . 10 | 21 | 1.90 | . 04 | . 18 | 24 | 46 |

$\frac{\text { Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns. }}{\text { AU* }- \text { IGNITED, AQUA-REGIA/MIBX EXTRACT, GF/AA FINISHED. }(10 \mathrm{GM})}$

$\frac{\text { Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Rerunc. }}{\text { AU* - IGNITED; AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED. ( } 10 \mathrm{GM})}$

| SAMPLE \# | WIDTH m | DESCRIPTION (see legend for lithology) |  | Au opt | As ppm | Fe \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 97-AR-01 | 0.2 | $2 \mathrm{a}, \mathrm{qtz}$. vein, $0.3 \%$ diss. lim | monite | 0.001 | 191 | 0.82 |
| 97-AR-02 | 0.9 | 1a, qtz. vein, $0.5 \%$ limonite | e blebs | 0.014 | 117 | 2.23 |
| 97-AR-03 | 0.2 | 2a, grey qtz. vein, tr. py. |  | 0.001 | 66 | 0.72 |
| 97-AR-04 | 0.1 | $2 \mathrm{a} / 3$, qtz. vein in large bou | ulder in creekbed | 0.002 | 209 | 1.17 |
| 97-AR-05 | 4.5 | 3?, 3-5\% diss. pyo., 2-3\% | qtz./chl. Veins | 0.173 | 769 | 3.82 |
| 97-AR-06 | 0.3 | la, qtz. vein sub-crop, $0.3 \%$ | \% lim., hem. | 0.002 | 22 | 4.04 |
| 97-AR-07 | 0.4 | 1a, qtz. vein, tr. py., 3\% m | musc. | 0.019 | 38 | 2.00 |
| 251 | 0.5 | 1a, 20\% qtz.vns.. $1-15 \mathrm{~cm}$. | 1\% lim.0.5\%pyo. | 0.001 | 6 | 4.75 |
| 252 | 0.5 | $1 \mathrm{a}, 25 \%$ qtz. " $11-20 \mathrm{~cm}$. | " ${ }^{\text {c }}$ | 0.001 | 9 | 4.25 |
| 253 | 0.5 | 1a, $10 \%$ qtz. " $1-3 \mathrm{~cm}$. | " " | 0.012 | 9 | 4.24 |
| 254 | 0.5 | la, $8 \%$ qtz. " " | " " | 0.002 | 42 | 4.31 |
| 255 | 0.5 | 1a, " " | " " | 0.005 | 31 | 4.49 |
| 256 | 0.5 | 1a, $12 \%$ qtz. " $1-5 \mathrm{~cm}$. | " " | 0.018 | 53 | 4.51 |
| 257 | 0.5 | la, $15 \%$ qtz. " $11-8 \mathrm{~cm}$. | " " | 0.002 | 48 | 4.83 |
| 258 | 0.5 | 1a, 18\% qtz. " . $1-4 \mathrm{~cm}$. | " " | 0.006 | 107 | 4.02 |
| 259 | 0.5 | 1a, 14\% qtz." " | " " | 0.010 | 64 | 4.84 |
| 260 | 0.5 | 1a, 12\% qtz." | " " | 0.002 | 84 | 4.81 |
| 261 | 0.5 | la, 15\% qtz. " | " " | 0.009 | 50 | 4.16 |
| 262 | 0.5 | 1a, " " .1-8 cm. | " " | 0.004 | 63 | 4.09 |
| 263 | 0.5 | 1a, " " " | " " | 0.009 | 103 | 4.45 |
| 264 | 0.5 | 1a, | " " | 0.008 | 69 | 4.22 |
| 265 | 0.5 | 1a, | " " | 0.008 | 158 | 4.79 |
| 266 | 0.5 | 1a, | " " | 0.014 | 97 | 4.13 |
| 267 | 0.5 | 1a, " | " " | 0.004 | 204 | 3.86 |
| 268 | 0.5 | la, 12\% qtz. " | " " | 0.016 | 90 | 3.29 |
| 269 | 0.5 | la, 10\% qtz." | " " | 0.039 | 201 | 4.29 |
| 270 | 0.5 | 1a, " " | " " | 0.026 | 364 | 4.35 |
| 271 | 0.7 | la, $50 \%$ qtz." . $1-28 \mathrm{~cm}$. | " " tr. arspy | 0.007 | 1120 | 4.69 |
| 272 | 0.5 | 1a, $15 \%$ qtz. " $1-8 \mathrm{~cm}$. | 0.5\% pyo | 0.034 | 177 | 4.30 |
| 273 | 0.6 | 1a, 12\% qtz. " . $1-4 \mathrm{~cm}$. | " " | 0.004 | 121 | 4.14 |
| 274 | 0.5 | la, $20 \%$ qtz. " . $1+18 \mathrm{~cm}$. | " | 0.006 | 31 | 4.48 |
| 275 | 0.5 | la, $18 \%$ qtz. " $1-15 \mathrm{~cm}$. | " | 0.004 | 9 | 4.66 |
| 276 | 0.5 | 1a, 10\% qtz. " .1-4 cm. | " | 0.007 | 63 | 4.39 |
| 277 | 0.5 | la , " ". $1-3 \mathrm{~cm}$. | " " | 0.007 | 64 | 5.31 |
| 278 | 0.5 | 1a, " " | " " | 0.003 | 120 | 4.90 |
| 279 | 0.5 | 1a, " | " " | 0.015 | 124 | 4.28 |
| 280 | 0.5 | 1a, " | " " | 0.095 | 633 | 3.11 |
| 281 | 0.5 | la, " " | " " | 0.007 | 69 | 3.93 |
| 282 | 0.5 | la, $8 \%$ qtz. " . $1-10 \mathrm{~cm}$. | " | 0.014 | 50 | 4.26 |
| 283 | 0.5 | la, 10\% qtz." | " " | 0.012 | 69 | 4.66 |
| 284 | 0.5 | la, 8\% qtz. " | " " | 0.004 | 47 | 2.75 |
| 285 | 0.5 | 1a, $18 \%$ qtz. " $1-15 \mathrm{~cm}$. | , | 0.004 | 51 | 4.01 |
| 286 | 0.5 | 1a, $12 \%$ qtz." . $1-20 \mathrm{~cm}$. | " | 0.014 | 43 | 3.75 |
| 287 | 0.5 | 1a, $15 \%$ qtz." | " " | 0.005 | 37 | 4.68 |
| 288 | 0.5 | la, $10 \%$ qtz." . $1-15 \mathrm{~cm}$. | , | 0.005 | 64 | 3.94 |
| 289 | 0.5 | 1a, $8 \%$ qtz. " . $1-10 \mathrm{~cm}$. | " | 0.010 | 59 | 4.13 |
| 290 | 0.5 | la, $10 \%$ qtz. " | " " | 0.013 | 90 | 4.70 |
| 291 | 0.5 | 1a, $6 \%$ qtz. " . $1-7 \mathrm{~cm}$. | " " | 0.007 | 95 | 4.39 |
| 292 | 0.5 | 1a, $8 \%$ qtz." " | " " | 0.007 | 69 | 3.92 |
| 293 | 0.5 | la, 10\% qtz." " | " " | 0.004 | 32 | 4.56 |
| 294 | 0.5 | la, " " | " | 0.006 | 96 | 4.41 |
| 295 | 0.5 | la, " " | " " | 0.001 | 47 | 4.13 |

| SAMPLE \# | WIDTH m | DESCRIPTION (see legend for lithology) |  |  | Au opt | As ppm | Fe \% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 296 | 0.5 | 1a, $10 \%$ qtz. vns. . $1-7 \mathrm{~cm}$. | \% lim | .0.5\%pyo | 0.001 | 43 | 4.20 |
| 297 | 0.5 | la," " " | " | " | 0.001 | 66 | 3.54 |
| 298 | 0.5 | 1a," " | " | " | 0.001 | 19 | 3.53 |
| 299 | 0.1 | 2a, $90 \%$ grey qtz., trace py. | pyo. |  | 0.001 | 7 | 0.66 |
| 300 | 0.5 | $2 \mathrm{a}, 1 \%$ qtz. vns. . 1 cm . trac | py./ |  | 0.001 | 307 | 2.99 |
| 301 | 0.1 | 2a, $90 \%$ grey qtz. 100 cm . |  |  | 0.020 | 106 | 0.56 |
| 302 | 0.5 | 2a, 1\% qtz. vns. . 1 cm . | " | " | 0.001 | 433 | 2.94 |
| 303 | 0.5 | 2a, " " " | " | " | 0.001 | 319 | 2.93 |
| 304 | 0.1 | $2 \mathrm{a}, 90 \%$ grey qtz. 100 cm . | " | " | 0.017 | 345 | 0.98 |
| 305 | 0.5 | 2a, 1\% qtz. vns. . 1 cm . | " | " | 0.001 | 02 | 2.80 |
| 306 | 0.1 | $2 \mathrm{a}, 90 \%$ grey qtz. 100 cm . | " | " | 0.002 | 39 | 2.52 |
| 307 | 0.1 | 2a, " " " " | " | " | 0.040 | 2623 | 2.78 |
| 308 | 0.6 | 2a, 25\% qtz. . $1-10 \mathrm{~cm}$. | " | " | 0.005 | 15 | 5.04 |
| 309 | 0.4 | 2a, 20\% qtz. . $1-12 \mathrm{~cm}$. | " | " | 0.001 | 20 | 4.57 |
| 310 | 0.5 | $2 \mathrm{a}, 2 \% \mathrm{qtz}$. vns. . 1 cm . | " | " | 0.001 | 14 | 2.64 |
| 311 | 0.1 | $2 \mathrm{a}, 90 \%$ grey qtz. 100 cm . | " | " | 0.001 | 2 | 0.43 |
| 312 | 0.5 | 2a, $2 \%$ qtz. vns. 1 cm . | " | " | 0.001 | 20 | 2.47 |
| 313 | 0.1 | $2 \mathrm{a}, 90 \%$ grey qtz. 105 cm . | " | " | 0.003 | 2 | 0.57 |
| 314 | 0.1 | 2a, " | " | " | 0.001` | 2 | 0.56 |
| 315 | 0.1 | 2a, " " " | " | " | 0.001 | 2 | 0.43 |
| 316 | 0.5 | 2a, 1\% qtz. vns. . 1 cm . | " | " | 0.001 | 28 | 2.60 |
| 317 | 0.1 | 2a, $90 \%$ grey qtz. 95 cm . |  | " | 0.001 | 2 | 0.45 |
| 318 | 0.5 | 2a, $1 \%$ qtz. vns. 11 cm . | " | " | 0.001 | 10 | 2.68 |
| 319 | 0.1 | 2a, $90 \%$ grey qtz. 110 cm . | " | " | 0.001 | 4 | 0.44 |
| 320 | 0.5 | 2a, $8 \%$ qtz. vns. . $1-4 \mathrm{~cm}$. | " | " | 0.003 | 595 | 3.22 |
| 321 | 0.5 | 2a, 10\% qtz." " | " | " | 0.001 | 404 | 3.00 |
| 322 | 0.5 | 2a, $8 \%$ qtz. " | " | " | 0.001 | 91 | 2.94 |
| 323 | 0.5 | 2a, " | " | " | 0.001 | 88 | 3.12 |
| 324 | 0.5 | 2a, 12\% qtz. " .1-8 cm. | " | " | 0.001 | 47 | 2.75 |
| 325 | 0.5 | $2 \mathrm{a}, 8 \% \mathrm{qtz}$. " $11-3 \mathrm{~cm}$. | " | " | 0.001 | 79 | 2.87 |
| 326 | 0.5 | 2a, " " | " | " | 0.001 | 48 | 2.57 |
| 327 | 0.5 | 2a, " | " | " | 0.015 | 2642 | 2.70 |
| 328 | 0.5 | $2 \mathrm{a}, 15 \%$ qtz. " . $1-10 \mathrm{~cm}$. | " | " | 0.004 | 1197 | 2.96 |
| 329 | 0.5 | 2a, " " | " | " | 0.004 | 1708 | 2.60 |
| 330 | 0.5 | 2a, | " | " | 0.004 | 711 | 3.11 |
| 331 | 0.5 | 2a, 10\% qtz. " . $1-6 \mathrm{~cm}$. | " | " | 0.001 | 624 | 2.27 |
| 332 | 0.5 | 2a, " " " | " | " | 0.002 | 1537 | 2.42 |
| 333 | 0.5 | 2a, " " " | " | " | 0.001 | 1890 | 2.35 |
| 334 | 0.5 | 2 a , " " | " | " | 0.002 | 2960 | 2.97 |
| 335 | 0.5 | 2a, 15\% qtz. " . $1-10 \mathrm{~cm}$. | " | " | 0.002 | 3476 | 2.52 |
| 336 | 0.5 | 2a, " " " | " | " | 0.001 | 1320 | 2.58 |
| 337 | 0.5 | 2a, " " | " | " | 0.001 | 1110 | 2.44 |
| 338 | 0.5 | 2a, | " | " | 0.001 | 2437 | 2.20 |
| 339 | 0.5 | 2a, | " | " | 0.004 | 1724 | 2.27 |
| 340 | 0.5 | 2 a , " " | " | " | 0.001 | 761 | 2.37 |
| 341 | 0.5 | 2 a , | " | " | 0.003 | 946 | 2.35 |
| 342 | 0.5 | 2a, 10\% qtz. " . $1-5 \mathrm{~cm}$. | " | " | 0.061 | 2059 | 2.47 |
| 343 | 0.5 | 2 a , " " | " | " | 0.001 | 640 | 2.23 |
| 344 | 0.5 | 2 a , " " " | " | " | 0.002 | 1088 | 3.12 |
| 345 | 0.5 | 2a, " " | " | " | 0.003 | 291 | 3.14 |
| 346 | 0.5 | 2a, 12\% qtz. " .1-8 cm. | " | " | 0.001 | 189 | 3.03 |
| 347 | 0.1 | $2 \mathrm{a}, 90 \%$ grey qtz. 100 cm . | " | " | 0.001 | 80 | 1.17 |



