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**GEOLOGICAL AND GEOCHEMICAL REPORT  
on the WEST LEECH CLAIM GROUP,  
VALENTINE MTN, SOOKE, B.C.**

FOR:  
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GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

NOV. 7, 1997

25,243

## TABLE OF CONTENTS AND LIST OF FIGURES

	PAGE NO.
1.0 INTRODUCTION	1
2.0 LOCATION, ACCESS AND PHYSIOGRAPHY	1
3.0 PROPERTY STATUS	1
4.0 AREA HISTORY	1
5.0 PROPERTY HISTORY AND GEOLOGY	1
6.0 GENERAL GEOLOGY	7
7.0 1997 FIELD PROGRAM	9
7.1 METHODS AND PROCEDURES	9
7.2 PROPERTY GEOLOGY AND GEOCHEMISTRY	9
8.0 CONCLUSION AND RECOMMENDATION	11
REFERENCES	12
STATEMENT OF QUALIFICATIONS	13
ITEMIZED COST STATEMENT	14
FIGURE 1 LOCATION MAP	
FIGURE 2 CLAIM MAP	
FIGURE 3 GENERAL GEOLOGY	
FIGURE 4 PROPERTY GEOLOGY AND MINERALIZATION	
APPENDIX A ROCK CHIP Au GEOCHEMICAL CERTIFICATES	

## 1.0 INTRODUCTION

This report was prepared at the request of Beaupre Explorations Ltd. and consists of a compilation of geological fieldwork carried out between Jan. 1 to Aug. 15, 1997 within the West Leech claim group. The purpose of this report is to summarize geological data in order to evaluate the economic mineral potential of the West Leech claims.

## 2.0 LOCATION, ACCESS & PHYSIOGRAPHY

The property is located 42 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 4WD) 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 fault-line 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 West Leech claim group is listed as follows:

CLAIM NAME	# OF UNITS	RECORD #	MINING DIVISION	EXPIRY DATE *
JORDAN GOLD	18	260414	VICTORIA	11/01/99*
LUSTER 2	18	260415	VICTORIA	19/01/00
LUSTER 1	2	260418	VICTORIA	31/01/00
BPEX 3	1	260326	VICTORIA	06/02/99
BPEX 4	3	260333	VICTORIA	06/03/99
BPEX 5	1	260334	VICTORIA	06/03/99
BPEX 6	1	260335	VICTORIA	06/03/99
BLAZE 4	3	260306	VICTORIA	26/05/00
BLAZE 1	1	260251	VICTORIA	21/06/99
DORAN 1	2	261022	VICTORIA	07/07/99
DORAN 2 Fr	1	261023	VICTORIA	09/07/99
BLAZE 2	2	260253	VICTORIA	12/07/99
DORAN 5 Fr	1	261042	VICTORIA	26/08/99
BPEX 9	16	260381	VICTORIA	16/09/98*
BLAZE 3	12	260263	VICTORIA	03/01/98

- Expiry dates of Bpex 9 and Jordan Gold includes one years assessment work as described within this report.
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## 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. Cu-Pb-Zn-Ag-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% Cu, 1.22% Pb, 5.87% Zn, 4.73 g/t Au and 100.1 g/t 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% Cu.

## 5.0 PROPERTY 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 m. thick amphibolite unit is in close proximity (about 5-50 m.) to the main series of gold-quartz veins. A total of 3 gold-quartz veins were defined by drill intercepts as follows:

"C" vein zone: Located parallel and 10-15 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 m. depth and returned 7.550 opt Au across 0.5 m. Several other holes drilled nearby (i.e. 82-3,7,7A,5,5A,6A) 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 m. (0.9 m. wide) and at 154.6-155.1 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.
1. 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).
1. 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 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 sinistral 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 Au 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 m. wide, E-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 significant results:

**"C" Vein zone:**

Depth extension of the "C" vein (located 10-15 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) fault-bound 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 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 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 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	82-6A	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	Total ounces Au= 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 km. east and west of Valentine Mountain. A summary of Noranda's work is given as follows:

1. Unit 2 gneiss (metasandstone) is divided into 2 sub-units: 2a) meta-greywacke has a better developed schistosity and higher % of lithic fragments than 2b and is generally darker coloured, 2b) massive metasandstone light to dark grey colour with minor schistosity with 5% disseminated biotite. Unit 2b is very hard to break because it has been partially recrystallized.
2. Unit 1 schist (metapelite) is divided into 5 sub-units: 1a) 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 mm wide, garnet and/or andalusite/staurolite porphyroblasts are often observed within the biotite schist. 1c) Biotite-garnet schist, similar to 2b with the addition of 1-10 cm. reddish brown, euhedral garnet crystals. 1d) Biotite-garnet-staurolite schist, similar to 1c with the addition of euhedral staurolite commonly cruxiform. 1e) Biotite-garnet-staurolite-andalusite schist, similar to 1d with addition of 1-8 cm., pink andalusite porphyroblasts.
3. 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.
4. Unit 5 Eocene intrusives consist of quartz diorite which occurs as a 2.8 km. long X 0.1-0.6 km. wide sill feature that widens out in Walker Creek. This quartz diorite has numerous 1-3 m. wide aplite sills with localized 1-3 mm wide orange-red colour, euhedral garnets.
5. 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 m. width and occur in the Walker Creek area.
6. 1-5 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.

7. 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.
8. Gold bearing zones within the amphibolite are associated with pyrrhotite aggregates (forming 3% of total volume), however not all pyrrhotite zones contain gold mineralization.
9. Quartz veins hosted in schist (metapelite) generally parallel well developed schistosity. In gneiss (metasandstone), quartz veins 0.05-0.1 m. wide cut sandstone beds at angles of 30-45 degrees, and bedding is at low angles to foliation.
10. 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 metasiltsstones contain the most quartz, with amphibolite and metasandstone containing relatively medium amounts of quartz.
11. 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.
12. 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 L 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).
13. IP data from the west "Discovery Zone" indicates a chargeability/resistivity high and coincident Au soil geochem anomaly between L 20600 E/20087 N and L 19600 E/ 20137 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 m.
14. IP data from "BN" and "Braitreach" 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 m. north of the baseline.
15. "Braitreach 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 m. Fault breccia and gouge with 2-3% pyrite and pyrrhotite was cut at 76.5-77.8 m. An increase in biotite rich layers occurs at 77.8-84.4 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 m. Fault gouge and shearing with 2-3% pyrite occurs at 93.5-94.7 m. and 103.3-109.0 m.
16. "Discovery West" DDH 89-22,23,24 were drilled to intersect an IP 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 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 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 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 m. depth, DDH 89-24 cut a biotite rich layer with 0.5% euhedral garnet porphyryblasts, 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 89-24 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 IP chargeability high correlates with this mineral zone.

17. 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 E/20935 N where there are 5-25 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).

- I. 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) "Braitach Zone" trench sampling is summarized as follows: a) Zone #1 outcrops 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 E-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% Cu across 0.2 m. and 0.28% 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.
1. 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.
2. 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.

3. Greenschist facies metamorphism results in muscovite-chlorite-quartz assemblages.
4. 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.
5. In the Jordan R. valley southwest of Valentine Mountain, 10-50 m. wide coarse-grained biotite orthogneiss to granodioritic sills and related pegmatite dykes are concordant with regional schistosity.
6. 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.
7. 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, garnets 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 intrusive rocks which underlie the West Leech claim group:

#### EOCENE AND YOUNGER? INTRUSIVE ROCKS

9

- 6 Pegmatite, Leucocratic dykes and sills
- 5 Quartz diorite, minor granodiorite, granite
- 5a 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
  - 1b Biotite-garnet schist
  - 1c Biotite-garnet-staurolite schist
  - 1d Biotite-garnet-staurolite-andalusite schist

### 7.0 1997 FIELDWORK

#### 7.1 METHODS AND PROCEDURES

A 500 X 600 m. Area (30 ha.) area of the Blaze 2 claim was surveyed and mapped using hip chains and compasses. Flagged lines were surveyed E-W (baseline) and N-S (grid lines), at 25 m. intervals marked flagging was placed to assist in determining the outline of each outcrop exposure. Sample sites were chosen by visual presence of quartz veining and/or sulphide mineralization. Two kilogram rock chip samples were taken using sledge hammers in order to examine fresh, unoxidized bedrock. A total of 4 samples were taken from hand dug pits (which were covered by 1 metre of overburden). Samples 97-AR-35 to 38 were shipped to Bondar Clegg, N. Vancouver, B.C. for Au geochemical analysis (Appendix A).

#### 7.2 PROPERTY GEOLOGY AND GEOCHEMISTRY

The West Leech claim group is underlain by the Leech River Group metasediments and metavolcanics, which are cut by younger intermediate to felsic intrusives (Fairchild, 1979, Wingert, 1984, Grove, 1984). Geological mapping at a scale of 1:2,000 was carried out over the west portions of Blaze 2 and the following lithologies were recognized:

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

- 3 Amphibolite (metavolcanic)
- 2 Gneiss (metasandstone)
  - 2a "Dirty"- greywacke
  - 2b "Clean"- metaquartzite

- 1 Schist (metapelite)
- 1a Biotite schist
- 1b Biotite-garnet schist
- 1c Biotite-garnet-staurolite schist
- 1d Biotite-garnet-staurolite-andalusite schist

Geological mapping has identified a steep to moderate south dipping, E-W trending, 80-100 metres thick amphibolite which is faulted along the south contact by mixed gneiss (metasandstone and/or greywacke) and schist (biotite-garnet and/or staurolite, andalusite) and to the north the amphibolite contacts massive schist (biotite-garnet-staurolite and/or andalusite).

There were no outcroppings of intrusive rock found in the mapped area, but a small portion of diorite/granodiorite float boulders were located in the overburden.

Quartz veining occurs within all of the above lithologies and appear as stringers, veinlets and extensive vein systems which are 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. Typically the regional 090 lithology trend is cut by 070 quartz vein trend.

The "Discovery Zone" gold bearing veins (east portion of Blaze 2 claim) 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 inclusions in coarse grained arsenopyrite. The "D" vein exposed in pits dug along L 20350 E @ stn. 10060 N (sample # 97-AR-38) does not contain arsenopyrite, but exhibits the presence of K-spar alteration (sericite). The coarse grained arsenopyrite observed in the "Discovery Zone" suggests a zoned or a late phase gold bearing mineral event. At a later stage, further quartz veins formed, and gold migrated into some of these, possibly near the end of the deformational event.

Descriptions of rock chip samples taken from pit on L 20350 E are given below:

SAMPLE #	DESCRIPTION (All sample taken across a width of 0.4 m.)	Au PPB
97-AR-35	1-6 cm. Wide quartz veinlets with 1-2% pyrite, 1% limonite, 20% qtz. As sample material, hosted in metasandstone (metagreywacke) gneiss, quartz is emplaced along shear zone Which occurs 2-4 m. from the amphibolite contact, minor sericite	93
97-AR-36	Same as above, 25% qtz.	444
97-AR-37	Same as above, 30% qtz.	389
97-AR-38	Same as above, with visible native gold in vuggy qtz.	33,670

The higher grade sample, 97-AR-38 was taken across a fault bound quartz vein network. There was very little visual difference between all 4 samples taken and the purpose of taking 4 similar samples was to determine the repeatability of gold tenor and the effects of nugget or

visible native gold present in sample 97-AR-38.

Sampling of sub-parallel quartz veins (97-AR-35 to 37) resulted in an order of 100 times less gold present than 97-AR-38, suggesting that there is coarse gold present in these vein systems and sampling problems exist if there is not adequate sample material tested. The interpretation of the gold bearing quartz vein (97-AR-38) is that it is a westward continuation of the "D" vein which was cut by Noranda's DDH 89-22,23,24 (see Fig. 4 for location) as described below:

"Discovery West" DDH 89-22,23,24 were drilled to intersect an IP 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 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 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 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 m. depth, DDH 89-24 cut a biotite rich layer with 0.5% euhedral garnet porphyroblasts, 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 89-24 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 IP chargeability high correlates with this mineral zone.

## 8.0 CONCLUSION & RECOMMENDATION

The West Leech claim group has potential for hosting an economic deposit of gold of considerable larger size than the present drill indicate reserve (outlined ore reserve calculation of 33,795 tons of 0.429 opt Au, based on a 1.2 m. width, from the "C" vein). This conclusion is based on the presence of high grade drill intercepts (e.g. DDH 89-24 intersected 2.301 opt Au across 0.4 m. @ 59.1-59.5 m. depth. This intersection is situated 2.2 m. above the metasandstone/amphibolite contact and is interpreted as the "D" vein system) and follow up hand trenching which returned values of 33.67 ppm Au across a width of 0.4 m. (sample # 97-AR-38).

### Phase 1:

Recommended fieldwork would involve detailed geological mapping, sampling backhoe and hand trenching of exposed outcrop along strike of the amphibolite (unit 3) including the areas 100 meters north and south of unit 3 (Fig. 4). Field crew would consist of 1 geologist, 2 geotechnicians and 1 equipment operator for 21 days with an approximate budget of \$58,000 including assays and support.

### Phase 2:

Contingent on the results of trenching in phase 1, a program of 1000 m. (3,280 ft.) of core drilling of trench sites is recommended.

Field crew would consist of 1 geologist, 2 geotechnicians, and 4 drillers for 25 days with an approximate budget of \$155,000 including assays and support.

**REFERENCES**

- Allen, G. (1989): Valentine Mountain Property "C" Vein Ore Reserves, Beau Pre Exploration Ltd.
- Fairchild, L.H. (1979): The Leech River Unit and Leech River Fault, Southern Vancouver Island, B.C.; M.Sc. Thesis, University of Washington.
- Fairchild, L.H. (1982): Structure, Petrology, and Tectonic History of the Leech River Complex, NW of Victoria, Vancouver Island; Can. Journal of Earth Sciences, Vol. 19, pages 1817-1835.
- Grove, E.W. (1981): Assessment Report, Blaze & BPEX Claims, for Beau Pre Explorations Ltd.
- Grove, E.W. (1982): Geological Report and Work Proposal on the Valentine Mountain Property for Beau Pre Explorations Ltd.
- Grove, E.W. (1984): Geological Report and Work Proposal on the Valentine Mountain Property for Beau Pre Explorations Ltd.
- Simandl, G.J., (1994): Andalusite in British Columbia-New Exploration Targets, B.C. Geological Survey Branch and G.S.C.
- Valentine Gold Corp. (1988): Valentine Mountain Project Report.
- Wingert, G.A. (1984): Structure and Metamorphism of the Valentine Mountain Area, SW Vancouver Island

ITEMIZED COST STATEMENT- BLAZE 2 CLAIM (PART OF THE WEST LEECH  
CLAIM GROUP), APRIL 13-17& 22-26, 1997  
VICTORIA MINING DIVISION, NTS 92 B 12/W

FIELD CREW:

Andris Kikauka, Geologist 10 days	\$ 2,000.00
Simon Salmon, Geotechnician, 10 days	1,500.00
Jamie Pincombe, Geotechnician, 10 days	1,250.00

FIELD COSTS:

4 rock chip samples, Au geochemical analysis	68.00
Transportation (truck and fuel)	375.00
Report	107.00

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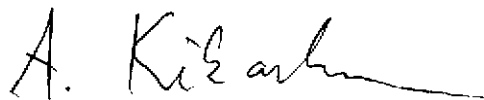
Total= \$ 5,300.00

## CERTIFICATE

I, **Andris Kikauka**, of **Box 370, Brackendale, B.C.**, hereby certify that;

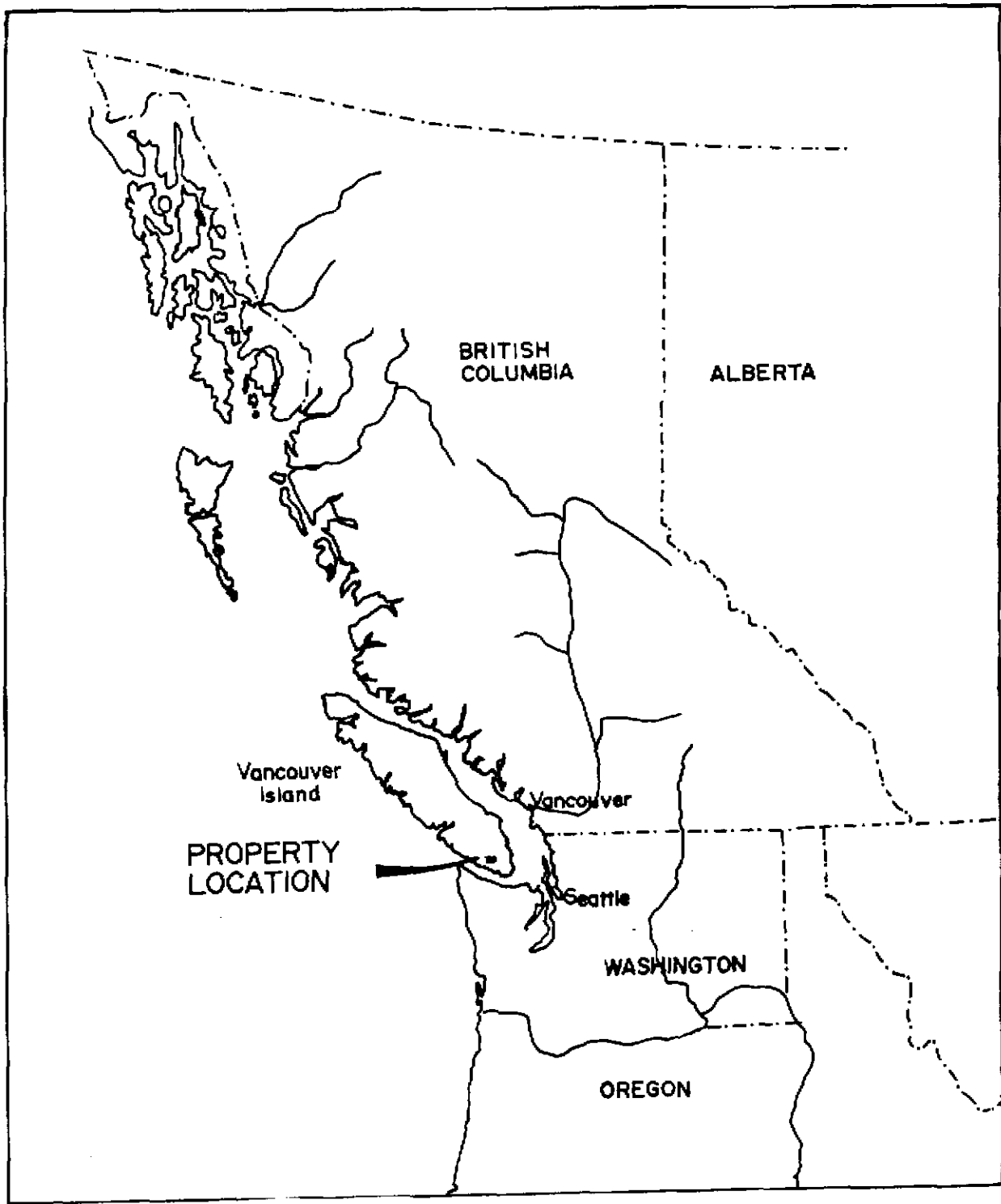
1. I am a graduate of Brock University, St. Catharines, Ont., with an Honours Bachelor of Science Degree in Geological Sciences, 1980.
2. I am a Fellow in good standing with the Geological Association of Canada.
3. I am registered in the Province of British Columbia as a Professional Geoscientist.
4. I have practised my profession for fifteen 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 interest, direct or indirect with 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.**



**November 7, 1997**





GENERAL LOCATION MAP

WEST LEECH CLAIMS

VICTORIA MINING DIVISION

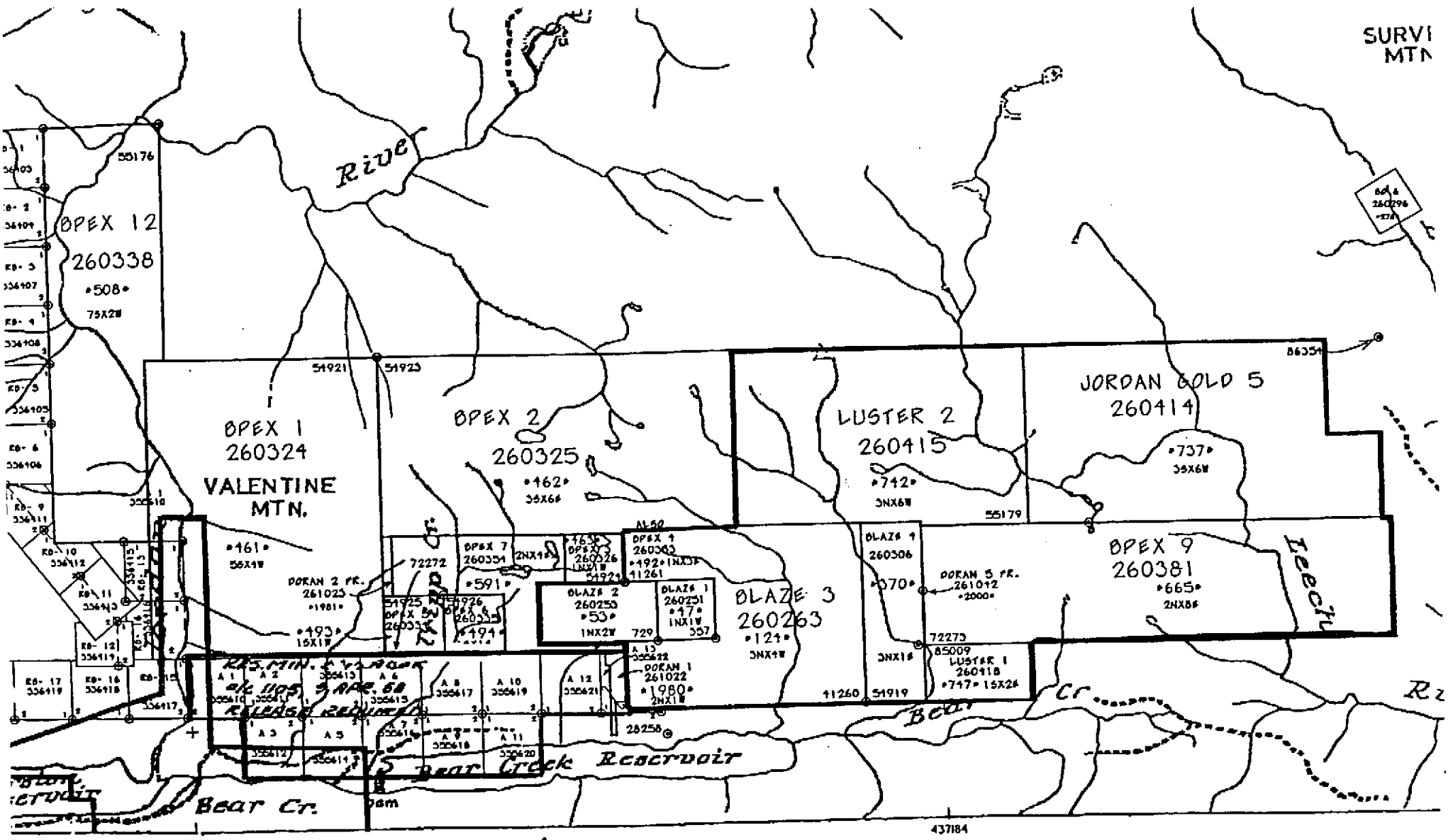
Scale 1:12,000,000 FIG. 1

0 320 640 Km.

BEAUPRE EXPLORATIONS LTD.



SURVI  
MTN



BEAUPRE EXPLORATIONS LTD.  
 WEST LEECH CLAIM LOCATION MAP  
 Victoria Mining Division, NTS 92 B/12 W Fig. 2



# GENERAL GEOLOGY - SOUTHERN VANCOUVER ISLAND FIG. 3

## LEGEND

### TEPTIARY (SEDIMENTS AND VOLCANICS)

- Ts** Sooke Group- sandstone, shale, conglomerate
- TM** Metchosin Group- pillow basalt, flows, tuff, tuff breccia

### TERTIARY (INTRUSIVES)

- Tag** Sooke Group- augite gabbro

### CRETACEOUS (SEDIMENTS)

- KN** Nanaimo Group- sandstone, shale, conglomerate

### JURASSIC AND CRETACEOUS (SEDIMENTS AND VOLCANICS)

- JKL** Leech R. Group- phyllite, schist (metamorphosed pelitic, arenaceous, volcanic rocks, and chert) minor quartz-feldspar-biotite gneiss sills and quartz-feldspar-muscovite dykes

### JURASSIC (VOLCANICS)

- JB** Bonanza Group- andesite, dacite, rhyolite

### JURASSIC (INTRUSIVES)

- Jgd** Granodiorite

### TRIASSIC (SEDIMENTS AND VOLCANICS)

- To** Quatsino Group- limestone, siltstone, argillite
- TK** Karmutsen Group- basalt, pillow lava

### CARBONIFEROUS (VOLCANICS)

- CS** Sicker Group- meta-andesite, dacite

### PALEOZOIC (INTRUSIVES)

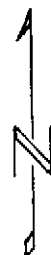
- gn** Colquitz gneiss diorite

### SYMBOLS

- Fault
- Reverse Fault (teeth on hanging wall)
- Bedding
- Foliation
- Geological Contact
- River or Creek
- Relative Fault Movement



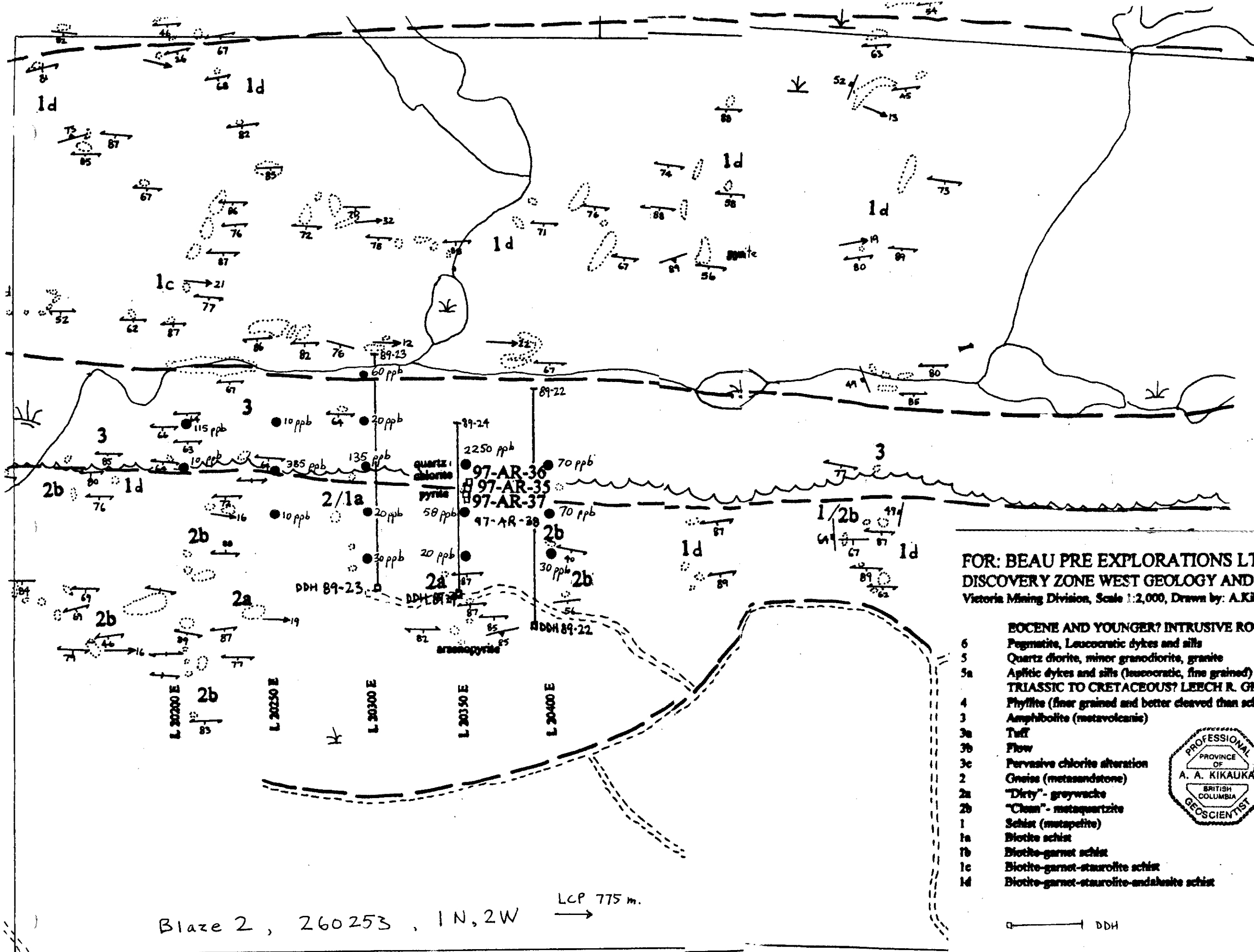
0 10 20 Km.



after J.E. Muller, 1980-82

BEAUPRE EXPLORATIONS LTD.

FIG. 3



FOR: BEAU PRE EXPLORATIONS LTD., VALENTINE PROJECT  
 DISCOVERY ZONE WEST GEOLOGY AND MINERALIZATION, NTS 92 B/12 W  
 Victoria Mining Division, Scale 1:2,000, Drawn by: A. Kikauka, May, 97 (modified after Noranda, 89)

**EOCENE AND YOUNGER? INTRUSIVE ROCKS** Fig. 4

- 6 Pegmatite, Leucocratic dykes and sills
- 5 Quartz diorite, minor granodiorite, granite
- 5a 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
- 1b Biotite-garnet schist
- 1c Biotite-garnet-staurolite schist
- 1d Biotite-garnet-staurolite-andalusite schist

**Legend:**

- Bedding
- Foliation
- Fracture
- Vein
- Creek
- Lithological contact
- Road
- Rock sample
- Soil sample (ppb Au) 1987 grid
- Fault
- Fold axis with plunge dip
- ⊥ stump

**PROFESSIONAL**  
 PROVINCE OF  
**A. A. KIKAUKA**  
 BRITISH COLUMBIA  
**GEOSCIENTIST**

DDH



**Intertek Testing Services**  
Bondar Clegg

CLIENT: BEAN PRK EXPLORATIONS LTD.  
REPORT: V97-02303.0 ( COMPLETE )

DATE RECEIVED: 03-SEP-97

PROJECT: MONK GTURN

DATE PRINTED: 10-SEP-97

PAGE 1 OF 1

SAMPLE NUMBER	ELEMENT UNITS	Au30 PPM
R2 <del>XXXX</del>		<del>XXX</del>
K2 <del>XXXX</del>		<del>XXX</del>
R2 <del>XXXX</del>		<del>XXX</del>
R2 97AR35		93
K2 97AR36		444
R2 97AR37		389

01-985-1071 Rt 18-JUN-1997 15:07 Page 2



**Intertek Testing Services**  
Bondar Clegg

CLIENT: BEAN PRK EXPLORATIONS LTD.  
REPORT: V97-01296.4 ( COMPLETE )

DATE RECEIVED: 06-JUN-97

PROJECT: VALENTINE

DATE PRINTED: 18-JUN-97

PAGE 1 OF 1

SAMPLE NUMBER	ELEMENT UNITS	Au PPM	Au Grav PPM	Ag PPM
R2 97AR38 V22638	>10.00	33.67		4.7

33.67 ppm = 0.982 opt Au