

GEOLOGICAL ASSESSMENT REPORT  
ON THE MOLLY GROUP

by: Linda Caron

June 1991

2148

ASSESSMENT REPORT FOR GEOLOGICAL WORK  
MOLLY PROPERTY

GREENWOOD MINING DIVISION  
NTS 82E/2E

Lat:49° 02'N  
Long:118° 43' W

for: Mrs. McArthur  
Box 258  
Greenwood, B.C.

by: Linda Caron  
June, 1991

ACTION:

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**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**21,486**

## 1.0 INTRODUCTION

### 1.1 Location, Access and Terrain

The Molly property is located about 8 kilometres southwest of Greenwood, B.C., centred on Boundary Creek and covering the north and south facing slopes above the creek. Access to the claims is excellent. The property is reached by following Highway 3, southwest from Greenwood about 8 kilometres. The highway provides the best access to the central part of the claims. Roads up Kerr Creek and Norwegian Creek also provide access to the property.

The terrain is moderate to steep, with elevations ranging from about 600 metres in the Boundary Creek valley to about 830 metres at the top of the Norwegian Creek canyon to the east. Much of the property consists of open grassy meadows and sidehills. Immature second growth pine, cedar, and larch, with minimal undergrowth, cover the remaining areas. Rock exposure is good along the steep banks of Boundary, Kerr and Norwegian Creeks, but elsewhere is minimal.

### 1.2 Property and Ownership

The property consists of seven 2 post mineral claims, as listed below and shown on Figure 2. The claims are owned by Mrs. McArthur of Greenwood, B.C.

<u>Claim</u>	<u>Record Number</u>	<u>Expiry Date*</u>
Molly #1	not available	April 19, 1993
Molly #2	not available	April 19, 1993
Molly #3	not available	April 19, 1993
Molly #4	not available	April 19, 1993
Jon	4372	July 4, 1993
Toad	4373	July 4, 1993
Silas	4374	July 4, 1993

\* after acceptance of this report

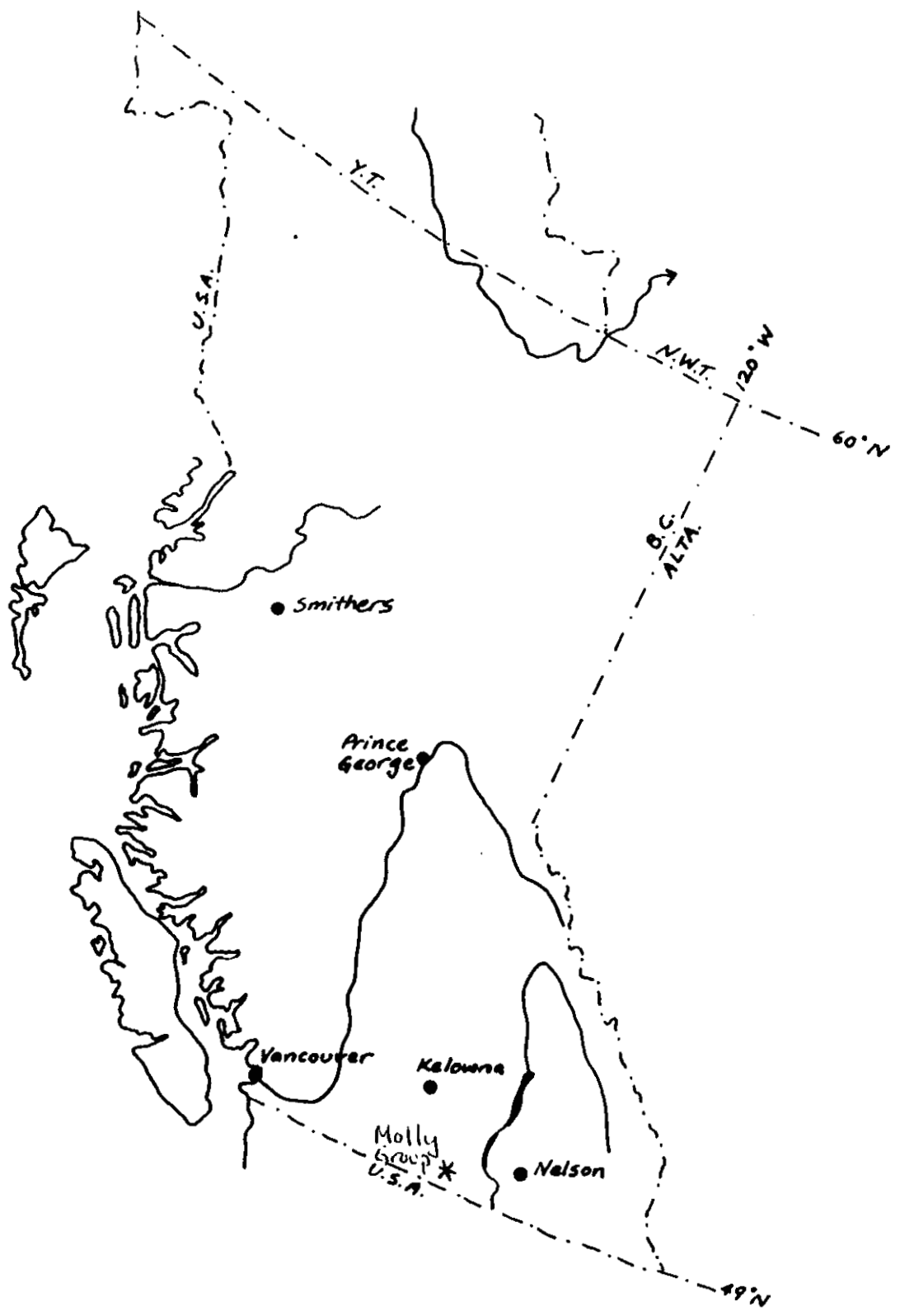


Figure 1  
LOCATION MAP

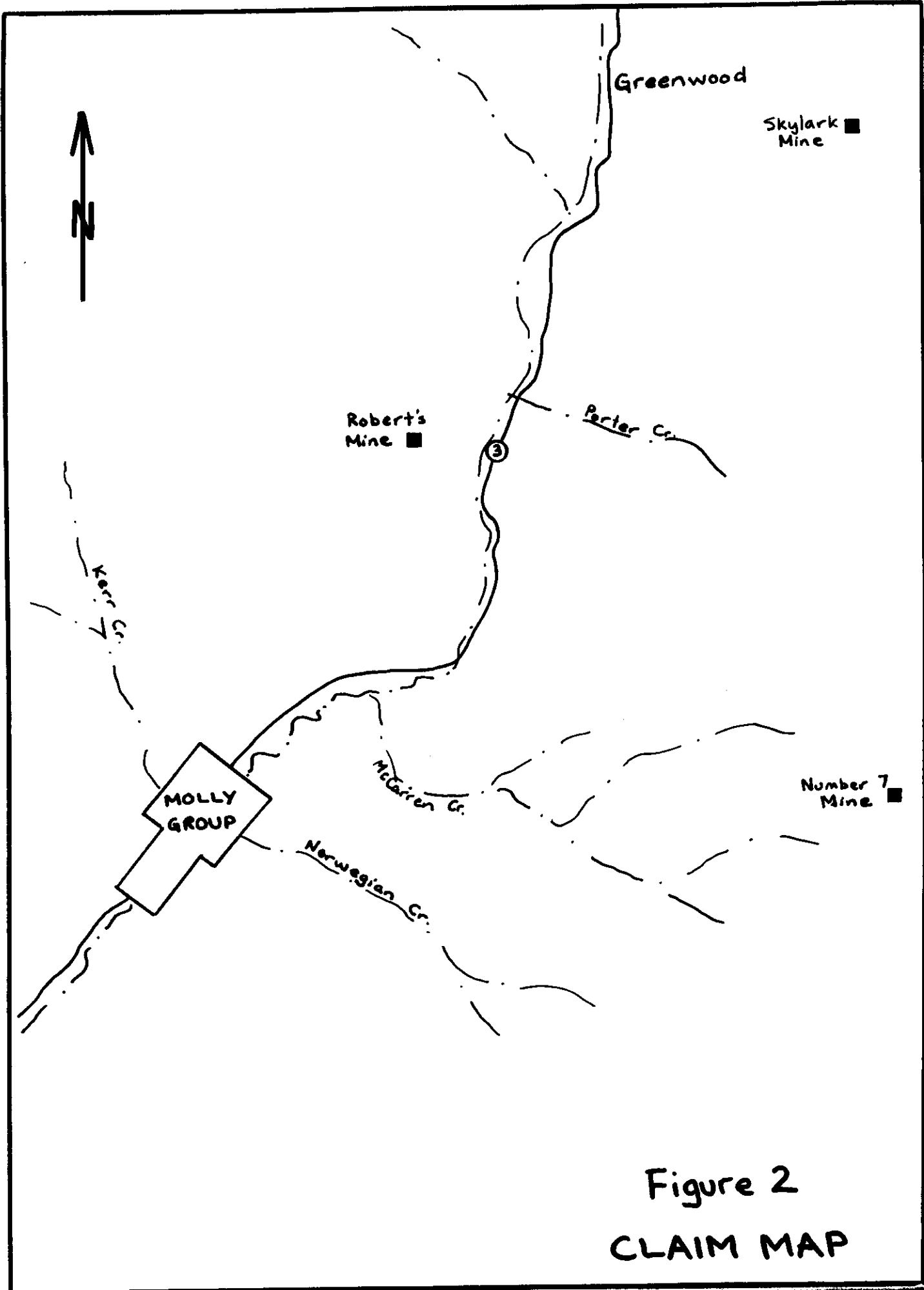


Figure 2  
CLAIM MAP

### 1.3 History

The Molly claims were staked in 1991, as a restaking of the Mary claims located by Mr. W. McArthur in 1986. Mr. McArthur is reported to have staked the claims based on mineralized float found in the creek valley. The Jon, Toad and Silas claims were staked by Mr. R. Lawrence in 1985 and optioned to Mr. McArthur in 1987. Although a significant amount of placer mining has been done along Boundary Creek in the area of the claims, there is no evidence of previous mineral exploration.

### 1.4 Summary of Work Done, 1991

Work done during 1991 consisted of a short geological mapping and sampling program, conducted between May 20 and May 30, 1991. A total of 2 rock and 3 soil samples was collected from the property; all work was done by L. Caron.

## 2.0 GEOLOGY

### 2.1 Regional Geology

The Greenwood area has been mapped on a regional basis by a number of people, most recently by Fyles (1990), and prior to this by Little (1983) and Church (1986). Although all these authors generally agree on the ages and distribution of the geological units, Fyles' work is the first to give an adequate interpretation explaining this distribution. His mapping shows that the pre-Tertiary rocks form a series of thrust slices, which lie above a basement high grade metamorphic complex. A total of five thrust slices are recognized, all dipping gently to the north, and bounded in many places by lenses and bodies of serpentine.

A major Tertiary graben, the Toroda Creek graben, cuts the older rocks in the west-central part of the map area. Within this graben, Eocene sedimentary, volcanic and subvolcanic rocks occur. The Molly property occurs near the eastern boundary of this graben and is underlain almost entirely by Eocene Marron volcanic and subvolcanic rocks.

Several Tertiary, epithermal style showings are known within the graben, to the north and northwest of the Molly property (the Rainbow and Tam O'Shanter showings), as well as a number of similar occurrences in the United States. At these locations, alteration is structurally controlled. Both older flat lying thrust faults and steep, north to northeast trending Tertiary faults are known to control the alteration.

### 2.2 Property Geology

The Molly property was mapped at a scale of 1:2500, as shown on Figure 3. During the course of mapping only one main geological unit was recognized. With the exception of one outcrop, the property appears to be underlain entirely by volcanics and subvolcanics of the Eocene Marron Formation. These rocks are



generally massive, fresh, fine grained and andesitic in composition. The distinction between volcanics and subvolcanics is based strictly on grain size; subvolcanic rocks are slightly coarser grained, and equigranular rather than porphyritic. No compositional difference was apparent. The flows are generally porphyritic, with phenocrysts of feldspar and pyroxene. Several different flows were recognized during the mapping program, however since alteration is affected only by later faulting, no attempt was made to clearly define the flow boundaries.

In one west to slightly northwest trending fault gully on the Toad claim, an outcrop of grey-green, medium grained dioritic intrusive was seen. The intrusive has 30-40% feldspar crystals in a fine grained weakly siliceous matrix, cut by minor quartz veinlets, and appears to be a late stage dyke intruding the Marron volcanics along the fault.

Several faults were inferred to occur on the property. In most cases the structures are recessive and marked by sharp gullies with little outcrop, so there is generally no exposure of these structures. Where outcrops do occur, little evidence of alteration related to these structures was seen. Faulting appears to be dominantly west to northwest, the most prominent of these structures being that marked by the steep canyons on Norwegian and Kerr Creeks.

Apart from the silicification noted above in a late stage dyke cutting the Marron volcanics, one area of epithermal veining was discovered. Milky, white, weakly banded chalcedonic veins, to about 2 centimetres in width, occur in relatively fresh Marron volcanic rocks in a large talus pile at the base of the cliffs on the northeast side of Norwegian Creek. The veins were not seen in outcrop, however there is no doubt that they are local and originate from the cliffs above.

### 3.0 ROCK AND SOIL GEOCHEMISTRY

A total of two rock and three soil samples was collected from the Molly property. Rock sample locations, as well as results for gold, silver, arsenic and mercury, are shown on Figure 3. Sample descriptions are contained in Appendix I and complete analytical results are included in Appendix II.

All samples were shipped to Min-En Laboratories in North Vancouver, for preparation and analysis. Rock samples were dried and crushed by a jaw crusher then pulverized on a ring mill pulverizer. Soil samples were dried and sieved to a -80 mesh fraction.

The potential of the Molly property appears to be restricted to Tertiary epithermal type mineralization. As a result, a package of typical epithermal indicator elements was analyzed for. A seven element ICP package was run on all samples (Ag, As, Cu, Mo, Pb, Sb, and Zn); detection limits are 1 ppm for all of these elements except silver which is 0.1 ppm. Gold analysis was done by fire geochemical methods; the detection limits for this analytical methods is 1 ppb. Geochemical analysis was also done for mercury (5 ppb detection limit).

Sample Molly-1 was a rock sample collected from the outcrop of weakly silicified diorite intrusive, cutting the Marron volcanics in a fault gully. This sample was not anomalous in any of the elements analyzed for.

The second rock sample collected, Molly-3, was taken of the chalcedonic veining discovered in talus in the Norwegian Creek canyon. Again, this sample was not anomalous in any elements.

Because of the general lack of outcrop in the recessive fault gullies, three soil samples were collected to test for possible alteration or mineralization along two on these structures. Molly-4 and Molly-5 test the west-northwest trending structure cut by the diorite dyke described above, while Molly-2 was collected from a steep, northwest trending gully on the Molly #1 claim. Neither

Molly-4 or -5 were significantly anomalous in any elements. Arsenic, gold and mercury levels are, however, all weakly elevated in sample Molly-2 (24 ppm, 20 ppb and 145 ppb, respectively, compared to a background of about 10 ppm, 5 ppb and 80 ppb). This structure is located on private land, however (owned by Mr. F. Marshall), and more encouragement would be needed before it would be prudent to further explore this area.

Soil sampling does appear to be an effective, and undestructive, method of testing for alteration in areas of poor exposure. Because of the lack of outcrop, significant faulting, and evidence of alteration, on the upper slopes of the hillside on the south side of Boundary Creek, contour-type soil sampling would be a good follow-up program if further work was planned on the property.

#### 4.0 SUMMARY AND CONCLUSIONS

A short geological mapping and sampling program was done on the Molly property, near Greenwood, in May, 1991. The claims lie near the eastern border of the Toroda Creek graben, within which structurally controlled, epithermal-type alteration is known at several locations. Mapping revealed the property to be underlain almost entirely by Eocene Marron volcanic and subvolcanic rocks.

Only two areas of alteration were noted, one a weakly silicified diorite dyke intruding the volcanics along a fault zone, and the other, an area of epithermal, chalcedonic veining in the Norwegian Creek canyon. Samples were collected from both locations, but neither proved anomalous in any elements.

A significant amount of northwest trending faulting is inferred on the property. These structures are generally recessive with little exposed rock. Soil samples collected from several of these structures indicate that there may be Tertiary aged mineralization associated with some of the structures. Additional soil sampling would be necessary to test this further.

## 5.0 RECOMMENDATIONS

If further work is planned for the Molly property, a contour-type soil survey along the upper, north facing slopes of Boundary Creek would be recommended. Such a survey would identify any areas of alteration related to poorly exposed faults identified during the current program. Analysis of these samples should be for gold, silver, arsenic and mercury, at a minimum. A spacing of 50 metres between samples, on lines spaced 150 metres apart, for a total of about 75 samples, would adequately test this portion of the property.

## 6.0 REFERENCES

- Church, B.N., 1986.  
Geological Setting and Mineralization in the Mount Attwood-Phoenix area of the Greenwood Mining Camp. BCDM Paper 1986-2.
- Fyles, J.T., 1990.  
Geology of the Greenwood-Grand Forks Area, British Columbia, NTS 82E/1,2. B.C. Geological Survey Branch Open File 1990-25.
- Little, H.W., 1983.  
Geology of the Greenwood Map area, British Columbia. GSC Paper 79-29.

**APPENDIX I**  
**SAMPLE DESCRIPTIONS**

## SAMPLE DESCRIPTIONS

- Molly-1 : Rock sample from outcrop of grey-green, medium grained, diorite intrusive. 30-40% sub-anhedral feldspar, to 3 mm, in a greenish, fine grained matrix. Matrix appears to be weakly silicified. Minor quartz veinlets.
- Molly-2 : Soil sample from a sharp NW trending fault gully on the steep hillside above Boundary Creek. Located on the Molly #1 claim, on land owned by Mr. F. Marshall.
- Molly-3 : Rock sample from the base of a large talus slope on the northern side of Norwegian Creek. Relatively unaltered Marron volcanics cut by white, milky, chalcedonic veins to 2 cm in width. Veins are weakly banded with grey rims and locally clear, crystalline quartz centres.
- Molly-4 : Soil sample from west-northwest trending fault gully at same location as Molly-1.
- Molly-5 : Soil sample, collected approx 100 metres uphill from Molly-4, in same sharp fault gully.



**APPENDIX II**  
**ANALYTICAL RESULTS**





**APPENDIX III**  
**COST STATEMENT**

**COST STATEMENT**

1.0 Fees and Wages

L. Caron, Geologist 5 days @ \$200/day \$1000.00

2.0 Analytical Results

Rock Samples: 2 @ \$30/sample \$60.00  
Soil Samples: 3 @ \$20/sample 60.00

3.0 Transportation and Accommodation

Truck rental 5 days @ \$45/day \$225.00  
Fuel and Supplies 30.00  
Room and Board 5 man days @ \$45/day 225.00

TOTAL: \$1600.00

**APPENDIX IV**  
**STATEMENT OF QUALIFICATIONS**

**STATEMENT OF QUALIFICATIONS**

I, Linda J. Caron, certify that:

- 1.0 I am an exploration geologist residing at Lind Creek Road (Box 248) Greenwood, B.C.
- 2.0 I obtained a B.A.Sc. in Geological Engineering (Honours) in the Mineral Exploration Option, from the University of British Columbia (1985).
- 3.0 I graduated with a M.Sc. in Geology and Geophysics from the University of Calgary (1988).
- 4.0 I have practised my profession continually since 1987 and have worked in the mineral exploration industry since 1980.
- 5.0 I was employed as an independent contractor by Mrs. McArthur to complete the work described in this report and have no other interests in the property. I have personally carried out this work program.

Date:

June 14/91

Linda Caron  
Linda Caron



