| LOG NO:  | 09-12 | RD. |
|----------|-------|-----|
| ACTION:  |       |     |
|          |       |     |
|          |       |     |
| FILE NO: |       |     |

AIR PHOTOGRAPHY &
GEOPHYSICAL SURVEYS

BLACK ROCK AND ASPEN CLAIM GROUPS

82F/3

NELSON MINING DIVISION

. 08' 45" . 12' 45" LAT: 49 10'N LONG: 117 11'W

OWNER: St. James's Minerals Ltd.

OPERATOR: GEOSTRATEGIC CONSULTANTS

REPORT BY: DAVID S. EVANS, Ph.D., P.Geol., FGAC

August 31rst, 1990

GEOLOGICAL BRANCH ASSESSMENT REPORT

20,259

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Rear Pocket

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## 1. SUMMARY

A followup geophysical survey on the Aspen and Black Rock Claim Group has yielded poor and/or insignificant data and information in support of previously acquired soil geochemistry data. A strong, linear Pb-Zn soil anomaly on the Black Rock Claims and immediately west of the formerly producing HB Mine is underlain by extensive overburden cover.

Similarly, a semi-regional air photograph study has yielded poor results and has provided only limited relationships between known mineral occurrences, important geological contacts and structures, geochemical anomalies and geophysical survey data.

It is recommended that additional prospecting and trenching on the Pb-Zn soil anomaly will probably serve as the most useful intermediary approach prior to (any) diamond drilling.

## 2. INTRODUCTION

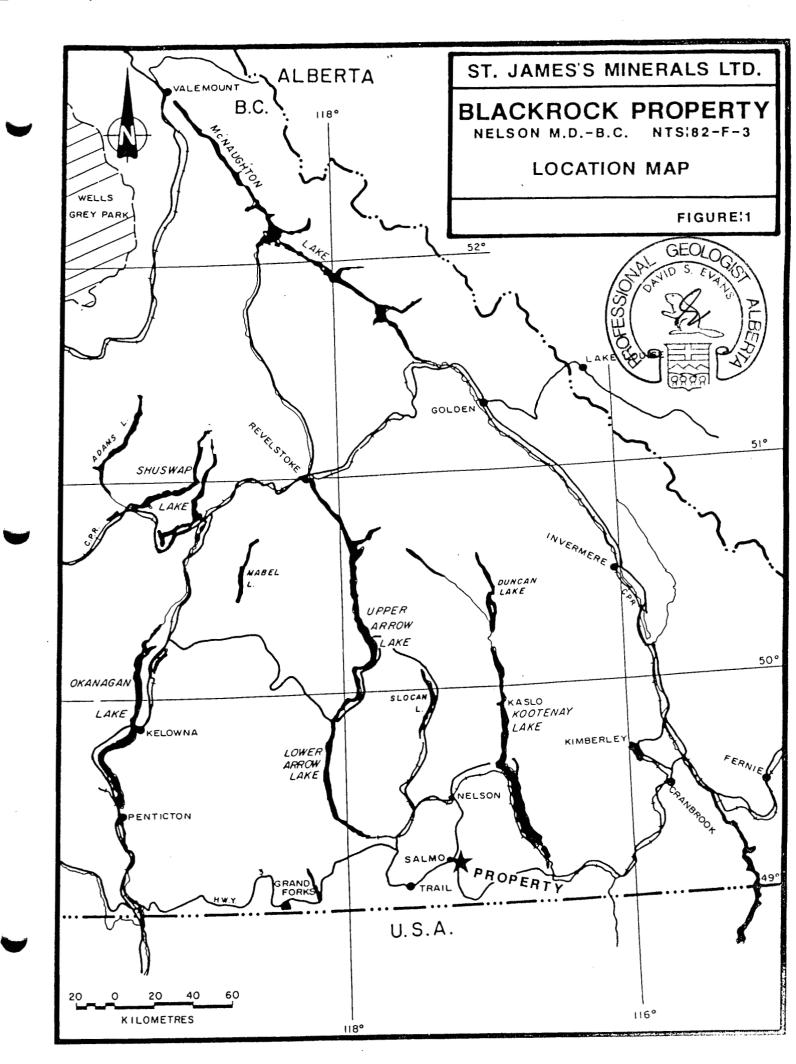
## 2.1 Location and Access

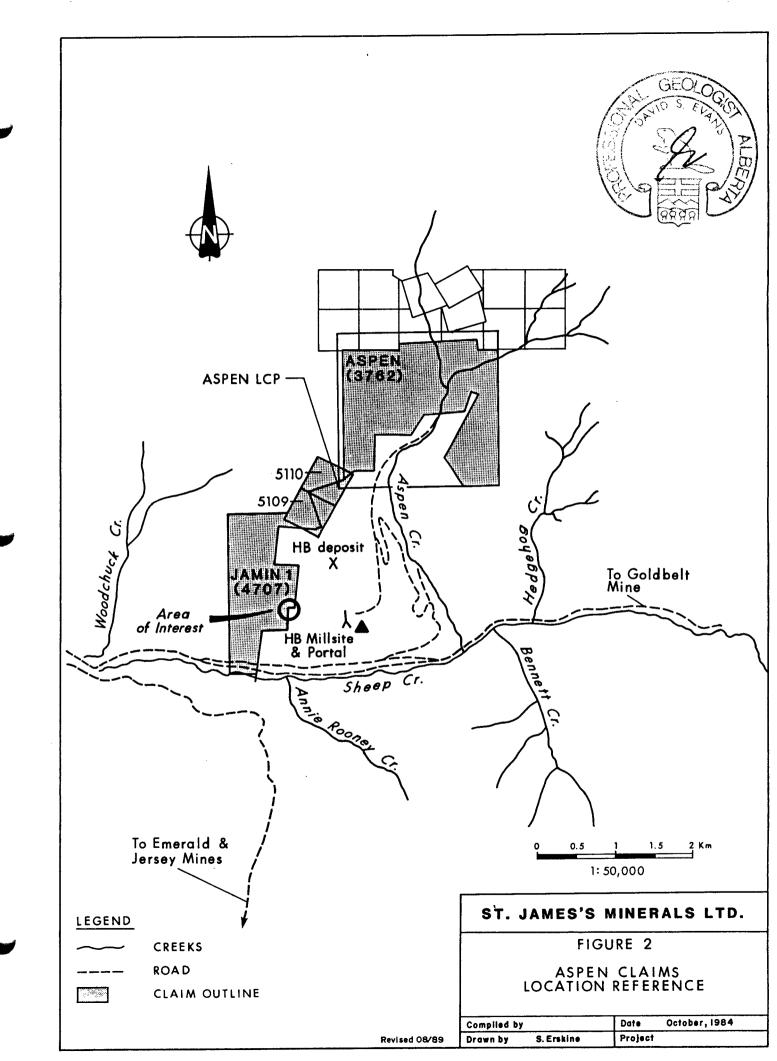
The Black Rock and Aspen Claim Group (Table 1) is located in the Nelson Mining Division in southeastern British Columbia (Figure 1) approximately  $7~\rm km$  southeast of town of Salmo and  $35~\rm km$  south-southeast of the city of Nelson.

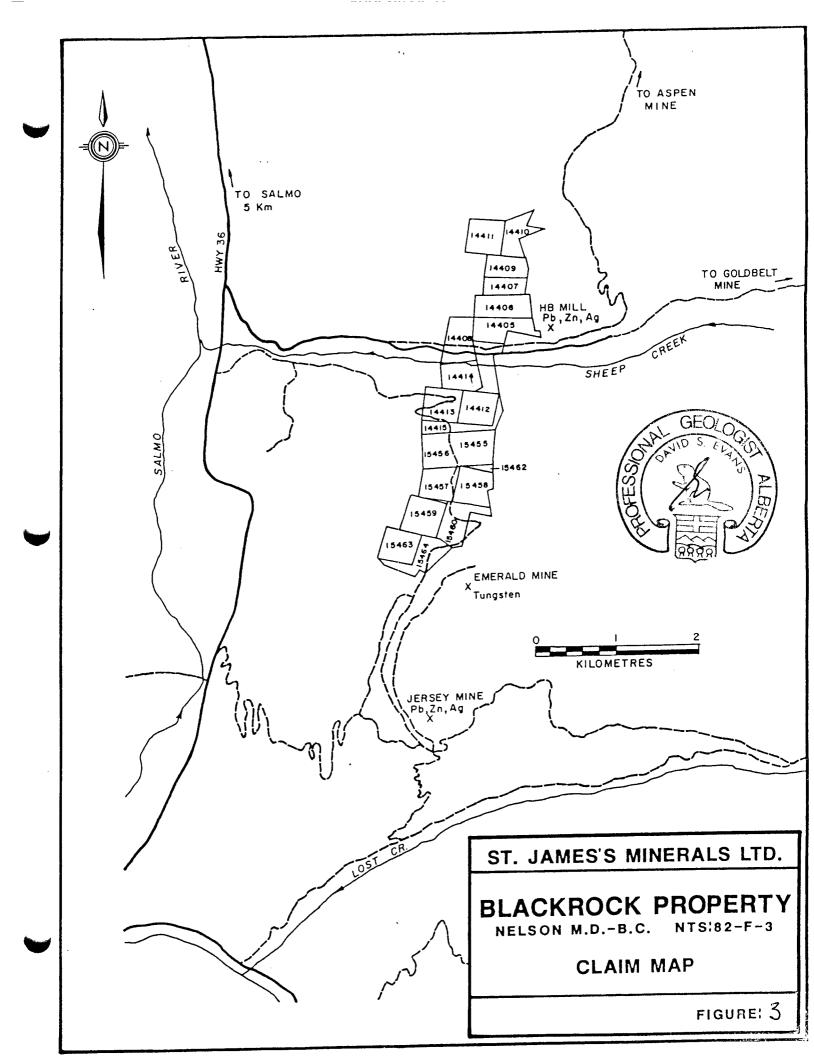
The property is accessible from Highway #3 from the Sheep Creek gravel road and via the old HB mine site. A dirt road along Aspen Creek reaches the area of interest (Figures 2 & 3).

TABLE 1
SCHEDULE OF CLAIMS

| CLAIM   | NAME |                      |      |     | RECORD | NO.      | RECORD | DATE         |
|---------|------|----------------------|------|-----|--------|----------|--------|--------------|
| Aspen   |      |                      |      |     | 3762   | )        | June   | 9            |
| Jamin   |      |                      |      |     | 4707   | ,        | July   | 7            |
| Bee     |      |                      |      |     | 5109   | )        | June   | )            |
| Tween   |      |                      |      |     | 5110   | )        | June   | ;            |
| Black   | Rock | No.                  | 11   | Fr. | 3 183  | }        | June   | )            |
| Black   | Rock | No.                  | 12   | Fr. | 3 184  | <u> </u> | June   | )            |
| Black   | Rock | No.                  | 10   | Fr. | 3186   | •        | June   | ;            |
| Black   | Rock | $N \circ .$          | 15   | Fr. | 3187   | ,        | June   | )            |
| Black   | Rock | No.                  | 16   | Fr. | 3188   | <b>,</b> | June   | <b>;</b>     |
| Black   | Rock | $\mathtt{N} \circ .$ | 17   | Fr. | 3189   |          | June   | 9            |
| Black   | Rock | No.                  | 5    | Fr. | 3190   | 1        | June   | )            |
| Black   | Rock | No.                  | 13   | Fr. | 3 185  |          | June   | ;            |
|         |      |                      |      |     | 3191   |          | June   | <b>;</b>     |
| Black   | Rock | No.                  | 7    | Fr. | 3192   | 1<br>5   | June   | ;            |
| Black   | Rock | Frac                 | ctio | on  | 3193   | ı        | June   | )            |
| Black   | Rock | No.                  | 1    |     | 3194   |          | June   | <b>:</b>     |
| Black   | Rock | No.                  | 2    |     | 3195   |          | June   | •            |
| Black   | Rock | No.                  | 3    |     | 3196   |          | June   | <b>:</b>     |
| Black   | Rock | No.                  | 4    |     | 3197   |          | June   | <del>)</del> |
| Black   | Rock | No.                  | 19   | Fr. | 3197   |          | June   | !            |
| Black   | Rock | $N \circ .$          | 8    |     | 3198   |          | Jun∈   | <b>:</b>     |
| Black   | Rock | No.                  | 9    | Fr. | 3199   |          | June   | !            |
| Black   | Rock | No.                  | 18   | Fr. | 3200   |          | June   | <b>!</b>     |
| Black   | Rock | No.                  | 20   |     | 3201   |          | June   | !            |
| Black 1 | Rock | No.                  | 21   | Fr. | 3202   |          | June   | !            |







## 2.2 Physiography and Climate

The Black Rock & Aspen Claim Group is located on south facing slopes along the Sheep Creek valley which has been burned over and is now covered with cedar, low shrubs and patches of spruce and alder. The topography ranges from flat to rugged terrain. Overburden cover is extensive and varied in thickness. The lower areas are covered with discontinuous outwash gravels and sands. Outcrop exposure is generally limited.

The climate of the West Kootenay region is characterized by warm summers, a cool and damp fall and spring and relatively mild winters with heavy snowfall.

## 3. GEOLOGY

## 3.1 Regional Geology

The Black Rock & Aspen Claim Group is located in the Salmo Map Area (GSC Map 1145A) and has been mapped by Little (1964) and Fyles and Hewlett (1959).

The Salmo area is underlain by a north-south trending belt of Early Paleozoic sedimentary rocks (Active and Laib Formations). To the east, these rocks are intruded by Cretaceous Granites of the Nelson Batholith.

Mineral potential of the general area has traditionally focused on stratabound Pb-Zn-Ag "Sedex" orebodies of syngenetic origin and epigenetic base and precious metal-bearing veins and vein systems related to the Nelson Intrusions.

## 3.2 Local Geology

The property is underlain with limestones, argillites, and argillaceous quartzites of the Laib and Active Formations. The limestones have been recrystallized by metamorphic and/or hydrothermal activities. Argillaceous rocks are commonly silicified and quartz-rich, occurring as small veinlets and larger veins and stockworks. The property is characterized by numerous folding events and patterns and, resultant shear zones and faults (after Sinden and Evans, 1984).

## 3.3 Mineralization

The area of interest lies immediately west of the formerly producing HB Mine. A number of minor occurences have been identified on the Aspen Claims and the Black Rock Claims (Evans, 1988).

#### 4. PREVIOUS WORK

## 4.1 Geochemistry

In 1986, a soil survey was undertaken to cover an area of the Black Rock claims immediately north and south of Sheep Creek (Cooke, 1987). A strong Pb and Zn anomaly was identified north of Sheep Creek and west of the HB Mine. The area is heavily overburdened and the bedrock source of the anomaly was not located. In 1989, an extension survey was undertaken and confirmed a northward extension of this same anomaly.

In 1984 and 1988, successful soil surveys were conducted on the Aspen Claims and relocated and traced a narrow Pb-Zn-Ag-Au sheared vein (Evans and Sinden, 1984 and Evans, 1988).

## 4.2 Mapping and Prospecting

Mapping and prospecting work as reported in 1984, 1987, 1988 and 1989 has been of limited success. Only previously known Pb-Zn-Ag and Pb-Zn-Ag-Au occurrences of limited economic significance have been located or identified.

#### 5. AIR PHOTOGRAPHY AND GEOPHYSICAL SURVEYS

## 5.1 Geophysical Report

(see Geophysical Report Insert following Selected References)

The geophysical survey was undertaken over the grid prepared in 1986 (Cooke, 1987) and extended in 1989 (Evans, 1989). The location of the grid is located on the north side of Sheep Cr. and is noted as "area of interest" on Figure 2.

## 5.2 Air Photography

In conjunction with a ground geophysical survey (see separate attached report) an airphotograph study was made of the Aspen and Black Rock Claim Group. The results of this study are shown in Figure 3. This study was supplemented from known geological and structural information from Little (1964) and Fyles and Hewlett (1959).

An initial study of Air Photographs 65 and 65 (1970, Line 22007, 30,000 ft. ASL) showed almost a complete absence of (identifiable) structures, trends and lineations. As a result, the area of interest was expanded (Figure 3) to include a larger surrounding area to establish regional or "semi-regional" influences on geology and structure that may be related to base and precious metals mineralization and/or related mineralizing events.

The results (Figure 3) show that the area to south of the Rock and Aspen Claim Group has been the focus of considerable faulting and shearing, while the area to the north is distrubed OR dominated by deeper and tangential tectonic events. would appear that movement on the Sheep Creek Fault has laterally OR vertically influenced the level of geological exposure on the Black Rock and Aspen Claim Group. In summary, correlations regional lineations and other linear features have not successful in establishing relationships with known mineralization and mines (HB, Jersey etc.) and potentially mineralized sites on the Black Rock and Aspen Claim Group.

#### 6. CONCLUSIONS

Air photography and ground geophysical survey results have had limited success in improving base and precious metals potential on the Black Rock and Aspen Claim Group.

#### 7. RECOMMENDATIONS

Additional prospecting and trenching is recommended in the areas of soil geochemistry. Diamond drilling is contingent on these results.

August 31rst, 1990 Calgary, Alberta

D. S. Evans, Ph.D., P.Geol. Consulting Geologist

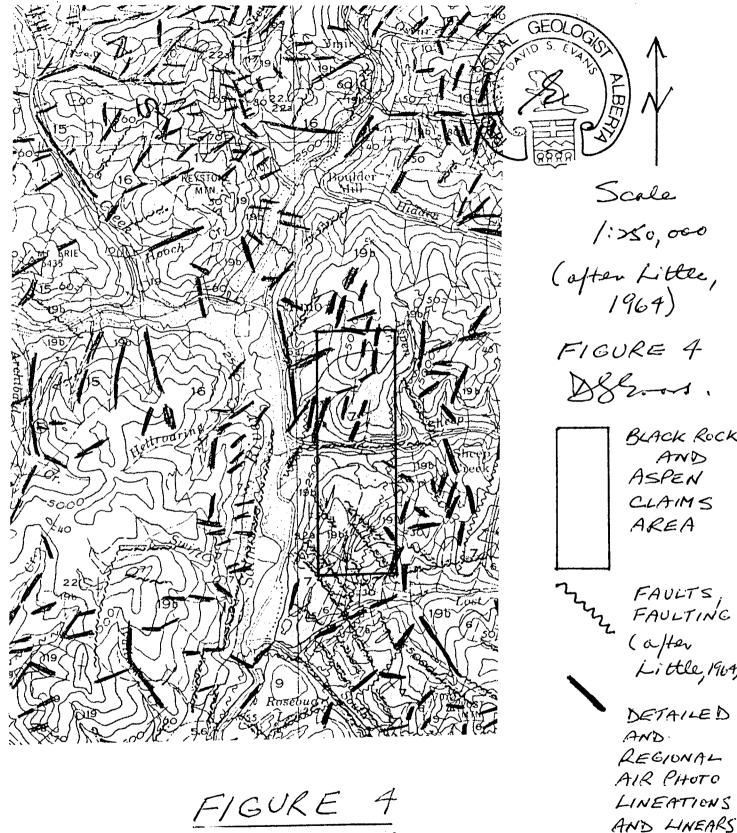


FIGURE 4 DETAILED AND REGIONAL AERIAL PHOTOGRAPHY

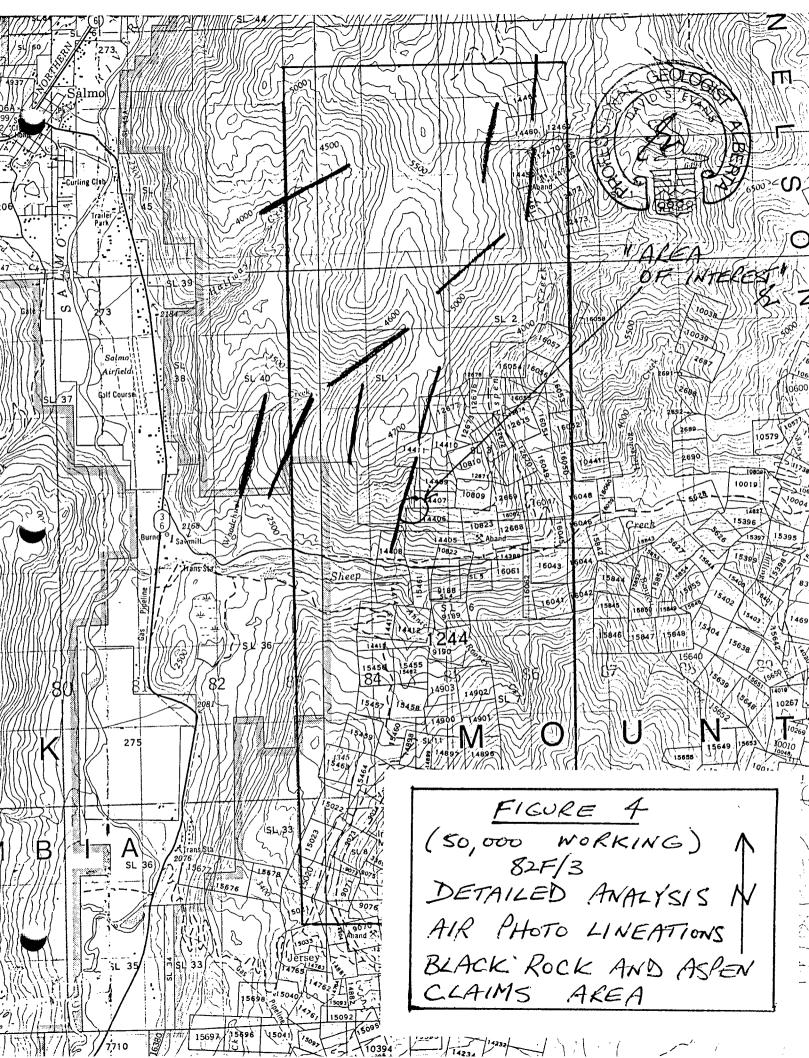
PLOTOS 65,67 LINE AZZE07 1970

(this report)

AND ASPEN CLAIMS AREA

FAULTS FAULTING

Little, 1964,



- 8. SELECTED REFERENCES
- Sinden, G. W. and Evans, D. S., 1984
   Geochemical Survey and Prospecting Report, Aspen Claims, Nelson Mining Division, NTS 82 F/3, 14p
- 2. Little, H. W., 1960 Nelson Map-Area, West Half British Columbia (82F W1/2) Geological Survey of Canada Memoir 308, 205p
- Little, H. W., 1964
   Salmo Map Area, British Columbia, GSC Map 1145A
- 4. Cockfield, W. E., 1936
  Lode Gold Deposits of Ymir-Nelson Area, British Columbia,
  Geological Survey of Canada Memoir 191, 78p
- 5. Cooke, D. D., 1987
  Assessment Report on the Geology and Soil Geochemistry
  of the Black Rock Property, Salmo Area, B.C.
  Nelson Mining Division, 7p
- 6. Evans, D. S., 1988
  Followup Soil Survey, Aspen Claim Group
  Nelson Mining Division, 5p
- 7. Evans, D. S., 1989
  Jamin Claim Soil Survy, Aspen Claim Group
  Nelson Mining Division, 5p
- 8. Fyles, J. T. and Hewlett, C. G., 1959 Stratigraphy and Structure of the Salmo Lead-Zinc Area British Columbia Dept. of Mines, Bulletin No. 41

# SUMMARY REPORT ON GEOPHYSICAL SURVEYS

BLACK ROCK PROPERTY
NELSON MINING DIVISION, B.C.

FOR

ST. JAMES MINERALS LTD.

BY

INTERPRETEX RESOURCES LTD.

## 1.0 INTRODUCTION

A geophysical program consisting of electromagnetic (VLF-EM) and magnetic surveys was carried out on a single grid located on the Black Rock property in the Nelson Mining Division, B.C. The survey was carried out in July, 1990.

#### 2.0 OBJECTIVES

- to establish a correlation between magnetic minerals and mineralized trends,
- to test the effectiveness of VLF-EM in following possible mineralized trends and to establish new unrecognized conductive trends,
- to establish geophysical areas of interest for future exploration.

#### 3.0 SURVEY SPECIFICATIONS

## Survey Parameters

- survey line separation 100 m.
- survey station spacing 25 m.
- VLF-EM and magnetic survey total 5.7 km.

## Equipment Parameters

- VLF-EM Survey
  - Geonics EM-16 VLF-EM receiver
  - Dip Angle (in-phase) and Quadrature (out-of-phase) measured in percent at each station
  - transmitting station used NLK (24.8 kHz) Seattle, Wa.
- Magnetic Survey
  - Geometrics G-816 proton precession magnetometer
  - earth's total magnetic field measured in gammas (nT)
  - instrument accuracy +/- 0.1 nT.

Equipment Specifications - see Appendix I

#### 4.0 DATA PRESENTATION

- Uncorrected magnetic data were profiled and are presented on Figure # 1 at a scale of 1:2500
- Seattle VLF-EM in-phase and out-of-phase readings are presented in profile form on Figure # 2 at a scale of 1:2500.

## 5.0 INTERPRETATION

## Discussion of Results

Total field magnetic data over the Silver Ghost grid were noise free with no cultural sources observed. Magnetic readings range from 56939 nT to 57666 nT. Uncorrected magnetic profiles (Figure # 1) show duplicate readings at station 400E on lines 1800N, 2000N and 2200N. Since a base station was not used to correct for magnetic variations, the duplicate readings show how much the diurnal drift affected the magnetic field in the time between readings. Except for line 1800N, the duplicate readings are relatively similar indicating that the diurnal drift was not too large.

The present grid is characterized by relatively quiet magnetic activity. Generally the magnetic results are characterized by numerous weak (100 to 200 nT) highs which form a complex and apparently random pattern. Therefore, no magnetic features were interpreted to continue from line to line. The strongest anomaly discovered by the present survey was a 500 nT high at station 300E on line 1900N.

VLF-EM data collected over the Silver Ghost grid were quite noisy and duplicate readings did not repeat very well. In phase readings appeared to be a factor of 100 times larger than normal values for the EM-16 and therefore each in-phase reading was divided by 100 before plotting. The VLF-EM profiles (Figure # 2) were plotted at a relatively compressed vertical scale of 1 cm. equals 30%, due to strong, noisy readings.

Although the VLF-EM data is suspect due to non-repeating readings, some anomalies appear to be present in the area. Two of these anomalies, located at about 400 E on lines 1800N and 1900N, form a strong conductor which trends northerly. Another possible trend, from 575 E on line 1900 N to 725 E on line 2200 N is within an active region which may be due to geological or other noise.

#### Conclusions

Magnetic results indicate that the bodies which have caused magnetic anomalies in this area are of short strike length. A broad north trending magnetic high, in the vicinity of 650 E on lines 1900 N through 2200 N, is an exception and may be due to an intrusive body such as a dike.

There are several possible explanations for the active or noisy VLF-EM results observed over the survey area. The transmitter signal strength may have been weakened due to the rugged topography in the area or anomalies may have been caused by zones of conductive overburden or perhaps the rocks in the area are underlain by conductive material such as clay alteration. The two conductors found may be due to undulations in the conductive overburden or subcrop or perhaps caused by fault or shear zones containing wet conductive fault material.

## 5. RECOMMENDATIONS

Before extensive ground work is carried out the VLF-EM conductors should be checked on the ground using a low frequency electromagnetic system such as vertical or horizontal loop E.M. in order to avoid the suspected noise problem caused by conductive geological or overburden materials. If these checks are successful then additional work such as detailed geochemical and geological surveys are recommended.

## AUTHOR'S NOTE

Data interpreted in this report were accumulated without supervision by Interpretex Resources Ltd. and were supplied by the Client to the writer(s). These data and the locations on the ground from which these data were accumulated are, except when specified otherwise by the writer(s), assumed to be reliable and correct and were interpreted using this assumption.

Respectfully Submitted

INTERPRETEX RESOURCES LTD.

Vancouver, British Columbia

T.R. MATICH

Geophysicist

#### CERTIFICATE

- I, Thomas Raymond Matich, Geophysicist of Surrey, British Columbia, Canada, hereby certify that:
- 1. I received a B.Sc. degree in Geophysics from the University of British Columbia in 1982.
- 2. I currently reside at 13914 116 Ave, in the Municipality of Surrey, in the Province of British Columbia.
- 3. I have been practising my profession since graduation.
- 4. This report may be used for the development of the property, provided that no portion will be used out of context in such a manner as to convey meanings different from that set out in the whole.
- 5. Consent is hereby given to the company for which this report was prepared to reproduce the report or any part of it for the purposes of development of the property, or facts relating to the raising of funds by way of a prospectus and/or statement of material facts.

Date: Ang 30, 1990

Surrey,

British Columbia

Signed:

Thomas Raymond Matich

B.Sc.

# APPENDIX I

Equipment Specifications

## GEONICS LIMITED VLF EM 16

Source of Primary Field:

VLF transmitting stations

Transmitting Stations Used:

Any desired station frequency can be supplied with the instrument in the form of plug-in tuning units. Two tuning units can be plugged in at one

time. A switch selects either station.

Operating Frequency Range:

About 15-25 Hz

Parameters Measured:

The vertical in-phase component (tangent of the tilt angle of the polarization ellipsoid).
 The vertical out-of-phase (quadrature) component (the short axis of the polarization ellipsoid).

soid compared to the long axis).

Method of Reading:

In-phase from a mechanical inclinometer and quadrature from a calibrated dial. Nulling by audio

tone.

Scale Range:

In-phase ±150%; quadrature ±40%

Readability:

±1%

Reading Time:

10-40 seconds depending on signal strength

Operating Temperature Range: -40 to 50° C.

Operating controls:

ON-OFF switch, battery testing push button, station selector, switch, volume control, quadrature, dial  $\pm 40\%$ , inclinometer dial  $\pm 150\%$ 

Power Supply:

6 size AA (penlight) alkaline cells. Life about

200 hours

Dimensions:

42 x 14 x 9 cm (16 x 5.5 x 3.5 in)

Weight:

1.6 kg (3.5 lbs)

Instrument Supplied With:

Monotonic speaker, carrying case, manual of operation, 3 station selector plug-in tuning units (additional frequencies are optional),

set of batteries

Shipping Weight:

4.5 kg (10 lbs.)

Name and Address of

Manufacturer:

Geonics Limited

1745 Meyerside Drive/Unit 8

Mississauga, Ontario

L5T 1C5

## MODEL G-816

## PORTABLE PROTON MAGNETOMETER

Sensitivity:  $\pm 1$  gamma throughout range

Range: 20,000 to 90,000 gammas (worldwide)

Tuning: Multi-position switch with signal amplitude

indicator light on display

Gradient Tolerance: Exceeds 800 gammas/ft

Sampling Rate: Manual pushbutton, one reading each 6 seconds

Output: 5 digit numeric display with readout directly

in gammas

Power Requirements: Twelve self-contained 1.5 volt "D" cell

universally available flashlight-type batteries.

Charge state or replacement signified by

flashing indicator light on display.

Temperature Range: Console and sensor: -40° to +85°c

Battery pack:  $0^{\circ}$  to  $+50^{\circ}$ C (limited use to  $-15^{\circ}$ C; lower temperature battery belt operation -

optional)

Accuracy (Total Field):  $\pm 1$  gamma through  $0^{\circ}$  to  $\pm 50^{\circ}$ C temperature range

Sensor: High signal, noise cancelling, interchangeably

mounted on separate staff or attached to back

pack

Size: Console:  $3.5 \times 7 \times 11$  inches  $(9 \times 18 \times 28 \text{ cm})$ 

Sensor: 3.5 x 5 inches (9 x 13 cm) Staff: 1 inch diameter x 8 ft. length

(3 cm x 2.5 m)

Weight: Console (w/batteries): 5.5lbs. 2.8kgs.

Sensor and signal cable: 4.0lbs. 1.8kgs. Aluminum staff: 2.0lbs. 0.9kgs.

Total Weight 11.5lbs. 5.2kgs.

EG & G Canada
Exploranium/Geometrics Division
Unit #1
640 Hardwick Road
Bolton, Ontario LOP 1AO

# APPENDIX II

VLF-EM and Magnetic Data List

INTERPRETEX RESOURCES LTD. Data Listing

Area: NELSON, B.C.
Grid: BLACK ROCK
Pate: August, 1990 Current File Name: BRDAT.WR1 From File Name: BR.XYZ

INSTRUMENT TYPE: EM-16 VLF-EM Receiver & G-816 Magnetometer

(Line & Station + = Northings and Eastings, - = Southings and Westings)

## DATA TYPE(S):

#1. Total Field Magnetic Values

#2. VLF-EM In-Phase Values #3. VLF-EM Ouadrature

#3. VLF-EM Quadrature

## DATA DETAILS:

Uncorrected total magnetic field Seattle Transmitter - facing east Seattle Transmitter - facing east

|      | Y<br>TION  | N/S<br>LINE # | # 1.  | # 2.         | # 3.      |
|------|------------|---------------|-------|--------------|-----------|
| TTHE | 0          | 2400          | 57232 | 165          | -32       |
|      | 25         | 2400          | 57225 | 350          | -32<br>34 |
|      | 50         | 2400          | 57197 | -200         | 16        |
|      | 75         | 2400          | 57191 | -122         | -2        |
|      | 100        | 2400          | 57231 | -160         | 1         |
|      | 125        | 2400          | 57162 | 250          | 34        |
|      | 150        | 2400          | 57133 | 275          | 39        |
|      | 175        | 2400          | 57108 | -34          | 2         |
|      | 200        | 2400          | 57119 | 122          | 40        |
|      | 225        | 2400          | 57174 | -225         | 16        |
|      | 250        | 2400          | 57122 | 225          | 32        |
|      | 275        | 2400          | 57061 | 225          | 27        |
|      | 300        | 2400          | 57113 | 150          | 34        |
|      | 325        | 2400          | 57094 | 275          | 42        |
|      | 350        | 2400          | 57331 | 275          | 42        |
|      | 375        | 2400          | 57178 | 122          | 32        |
|      | 400        | 2400          | 57211 | 116          | 21        |
|      | 400        | 2400          | *     | -160         | 26        |
|      | 425        | 2400          | *     | -116         | 16        |
|      | 450        | 2400          | *     | -106         | 6         |
|      | 475        | 2400          | *     | -120         | 5         |
|      | 500<br>525 | 2400          | *     | -119         | 10        |
|      | 550        | 2400<br>2400  | *     | -113<br>130  | 30<br>31  |
|      | 575        | 2400          | *     | -107         | 2         |
|      | 600        | 2400          | *     | -157<br>-150 | 15        |
|      | 625        | 2400          | *     | -160         | 7         |
|      | 650        | 2400          | *     | -145         | 35        |
|      | 675        | 2400          | *     | -122         | 16        |
|      | 700        | 2400          | *     | 160          | -10       |
|      | 725        | 2400          | *     | 145          | -10       |
|      | 750        | 2400          | *     | 155          | -11       |
|      | 775        | 2400          | *     | -400         | -10       |
|      | 800        | 2400          | *     | -450         | 3         |
| line | 2300       |               |       |              |           |
|      | 0          | 2300          | 57298 | 325          | 40        |
|      | 25         | 2300          | 57299 | 200          | 17        |
|      | 50         | 2300          | 57265 | 225          | 40        |
|      | 75         | 2300          | 57227 | 114          | 41        |
|      | 100        | 2300          | 57247 | 101          | 40        |
|      | 125        | 2300          | 57275 | 100          | 30        |
|      | 150        | 2300          | 57205 | 109          | 41        |

|      | 175        | 2300         | 57206          | 225          | 20         |
|------|------------|--------------|----------------|--------------|------------|
|      | 200        | 2300         | 57312          | -140         | 26         |
|      | 225        | 2300         | 57170          | -140         | 20         |
|      | 250        | 2300         | 57304          | -170         | 20         |
|      | 275        | 2300         | 57146          | -145         | 42         |
|      | 300        | 2300         | 57195          | -115         | 32         |
|      | 325        | 2300         | 57170          | -108         | 23         |
|      | 350        | 2300         | 57244          | 130          | 16         |
|      | 375        | 2300         | 57200          | -113         | 32         |
|      | 400<br>425 | 2300<br>2300 | 57234<br>57226 | 130<br>110   | 42         |
|      | 450        | 2300         | 57227          | 130          | 22<br>8    |
|      | 475        | 2300         | 57236          | 125          | 40         |
|      | 500        | 2300         | 57239          | -122         | 12         |
| line | 2200       |              | 0,203          |              |            |
|      | 0          | 2200         | 57360          | 275          | -2         |
|      | 25         | 2200         | 57278          | 400          | -12        |
|      | 50         | 2200         | 57253          | 225          | 22         |
|      | 75         | 2200         | 57280          | 300          | -11        |
|      | 100        | 2200         | 57156          | -400         | 9          |
|      | 125        | 2200         | 57212          | 300          | 23         |
|      | 150        | 2200         | 57190          | -325         | 39         |
|      | 175        | 2200         | 57295          | 300          | 42         |
|      | 200<br>225 | 2200<br>2200 | 57214<br>57305 | 225<br>-250  | 27         |
|      | 250        | 2200         | 57305<br>57177 | -250<br>-160 | 28<br>30   |
|      | 275        | 2200         | 57248          | -180<br>-180 | 6          |
|      | 300        | 2200         | 57292          | 300          | 18         |
|      | 325        | 2200         | 57150          | -180         | 20         |
|      | 350        | 2200         | 57309          | 250          | 2          |
|      | 375        | 2200         | 57227          | 500          | 32         |
|      | 400        | 2200         | 57234          | 500          | 2          |
|      | 400        | 2200         | 57265          | 116          | -44        |
|      | 425        | 2200         | 57347          | 137          | -29        |
|      | 450        | 2200         | 57262          | 127          | -1         |
|      | 475        | 2200         | 57385          | 127          | -2         |
|      | 500        | 2200         | 57262<br>57266 | 150          | -8<br>16   |
|      | 525<br>550 | 2200<br>2200 | 57266<br>57265 | 225<br>170   | -16<br>-24 |
|      | 575        | 2200         | 57293          | 160          | -24<br>1   |
|      | 600        | 2200         | 57375          | 250          | -5         |
|      | 625        | 2200         | 57383          | <b>-</b> 350 | 1          |
|      | 650        | 2200         | 57373          | -350         | -11        |
|      | 675        | 2200         | 57346          | 275          | 16         |
|      | 700        | 2200         | 57295          | 350          | -6         |
|      | 725        | 2200         | 57233          | 350          | -2         |
|      | 750        | 2200         | 57242          | -400         | 15         |
|      | 775        | 2200         | 57226          | 210          | 25         |
| 13   | 800        | 2200         | 57219          | 190          | -7         |
| line | 2100       | 2100         | E7222          | 160          | 2          |
|      | 0<br>25    | 2100<br>2100 | 57322<br>57259 | 160<br>190   | 3<br>-1    |
|      | 50         | 2100         | 57241          | 180          | 14         |
|      | 75         | 2100         | 57237          | 350          | 8          |
|      | 100        | 2100         | 57179          | 400          | 16         |
|      | 125        | 2100         | 57199          | 200          | 8          |
|      | 150        | 2100         | 57224          | 170          | 10         |
|      | 175        | 2100         | 57295          | 225          | 7          |
|      | 200        | 2100         | 57227          | 225          | 9          |
|      | 225        | 2100         | 57202          | 300          | 32         |
|      |            |              |                |              |            |

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|               | 250         | 2100         | 57 <i>4 4</i> 5 | 250          | 16               |
|---------------|-------------|--------------|-----------------|--------------|------------------|
|               | 275         | 2100         | 57445<br>57453  | 250<br>350   | 27               |
|               | 300         | 2100         | 57302           | 225          | 12               |
|               | 325         | 2100         | 57270           | 400          | 12               |
|               | 350<br>375  | 2100<br>2100 | 57376<br>57272  | 180<br>145   | -32<br>-28       |
|               | 400         | 2100         | 57301           | 122          | -20<br>-20       |
|               | 425         | 2100         | 57253           | 125          | -31              |
|               | 450         | 2100         | 57363           | 250          | -43              |
|               | 475         | 2100         | 57122           | 122          | -19              |
|               | 500<br>525  | 2100<br>2100 | 57249<br>57265  | 150<br>235   | -10<br>-31       |
|               | 550         | 2100         | 57351           | 250          | -29              |
|               | 575         | 2100         | 57352           | 225          | -15              |
|               | 600         | 2100         | 57364           | 170          | -15              |
|               | 625         | 2100         | 57358           | 260          | -10              |
|               | 650<br>675  | 2100<br>2100 | 57384<br>57275  | 325<br>260   | <b>-</b> 9<br>-9 |
|               | 700         | 2100         | 57273           | <b>-</b> 350 | -35              |
|               | 725         | 2100         | 57224           | 275          | -31              |
|               | 750         | 2100         | 57227           | -300         | -17              |
|               | 775         | 2100         | 57213           | 200          | -19              |
| line          | 800<br>2000 | 2100         | 57209           | -145         | -29              |
|               | -100        | 2000         | 57117           | 300          | 36               |
|               | <b>-</b> 75 | 2000         | 57116           | 350          | 36               |
|               | -50         | 2000         | 57136           | 350          | 36               |
|               | -25         | 2000         | 57092           | 125          | 41               |
| en .          | 0<br>25     | 2000<br>2000 | 57200<br>57119  | 117<br>130   | 22<br>32         |
|               | 50          | 2000         | 57158           | 145          | 40               |
|               | 75          | 2000         | 57155           | 125          | 42               |
|               | 100         | 2000         | 57097           | 160          | 44               |
|               | 125         | 2000         | 57077<br>57015  | 118          | 38               |
|               | 150<br>175  | 2000<br>2000 | 57015           | 123<br>128   | 40<br>30         |
|               | 200         | 2000         | 57109           | 130          | 42               |
|               | 225         | 2000         | 57043           | 125          | 40               |
|               | 250         | 2000         | 56963           | -111         | 30               |
|               | 275         | 2000         | 57217<br>57136  | -101         | 26<br>2          |
|               | 300<br>325  | 2000<br>2000 | 57222           | -104<br>158  | <b>-40</b>       |
|               | 350         | 2000         | 57277           | 112          | 18               |
|               | 375         | 2000         | 57205           | 115          | 20               |
|               | 400         | 2000         | 57228           | 118          | 10               |
|               | 400<br>425  | 2000<br>2000 | 57219<br>57224  | 158<br>125   | 0<br>-1          |
|               | 425         | 2000         | 57276           | 117          | -1<br>-2         |
|               | 475         | 2000         | 57245           | 145          | ī                |
|               | 500         | 2000         | 57198           | 300          | -28              |
|               | 525         | 2000         | 57244           | 250          | <b>-9</b>        |
|               | 550<br>575  | 2000<br>2000 | 57243<br>57219  | 170<br>190   | -28<br>-10       |
|               | 600         | 2000         | 57219           | 400          | -10<br>-25       |
| <b>4</b> 6: 4 | 625         | 2000         | 57318           | 190          | - <u>2</u> 5     |
|               | 650         | 2000         | 57385           | 400          | -20              |
|               | 675         | 2000         | 57156           | 145          | 33               |
|               | 700         | 2000         | 57272           | 116          | 31               |
|               | 725<br>750  | 2000<br>2000 | 57199<br>57187  | 450<br>125   | -2<br>1          |
|               | 150         | 2000         | 21701           | 123          | 1                |

| 775             | 2000         | 57007          | 250              | 3                 |
|-----------------|--------------|----------------|------------------|-------------------|
| 800             | 2000         | 57184          | 190              | 36                |
| line 1900       | 1000         | E 20 E 0       |                  |                   |
| -200            | 1900         | 57259<br>57205 | *                | *                 |
| -175<br>-150    | 1900<br>1900 | 57205<br>57140 | 102<br>103       | 41                |
| -125            | 1900         | 57140          | -162             | 28<br>28          |
| -100            | 1900         | 57194          | -152<br>-152     | 39                |
| <del>-</del> 75 | 1900         | 57166          | -113             | 32                |
| -50             | 1900         | 57149          | -102             | 35                |
| -25             | 1900         | 57136          | 102              | 29                |
| 0               | 1900         | 57110          | 102              | 35                |
| 25              | 1900         | 57120          | 101              | 30                |
| 50<br>75        | 1900         | 57113          | 103              | 41                |
| 75<br>100       | 1900<br>1900 | 57109<br>57088 | -101<br>102      | 38                |
| 125             | 1900         | 57101          | -170             | 33<br><b>-</b> 21 |
| 150             | 1900         | 57010          | -175<br>-115     | -32               |
| 175             | 1900         | 56939          | <del>-</del> 125 | -32<br>16         |
| 200             | 1900         | 57066          | -113             | 2                 |
| 225             | 1900         | 57111          | -125             | -19               |
| 250             | 1900         | 57168          | -101             | 10                |
| 275             | 1900         | 57067          | -106             | -1                |
| 300             | 1900         | 57666          | 103              | 15                |
| 325             | 1900         | 57425          | 150              | 36                |
| 350<br>375      | 1900         | 57451<br>57220 | 145              | 16                |
| 375<br>400      | 1900<br>1900 | 57238<br>57156 | 325<br>500       | 25                |
| 425             | 1900         | 57156          | -225             | 23<br>6           |
| 450             | 1900         | 57127          | -300             | 16                |
| 475             | 1900         | 57125          | 300              | 33                |
| 500             | 1900         | 57125          | 200              | 38                |
| 525             | 1900         | 57130          | 135              | 42                |
| 550             | 1900         | 57137          | 350              | 22                |
| 575             | 1900         | 57216          | 101              | -31               |
| 600             | 1900         | 57248          | -106             | -34               |
| 625             | 1900         | 57285          | 178              | -42               |
| 650<br>675      | 1900<br>1900 | 57253<br>57228 | 126              | <b>-</b> 3        |
| 700             | 1900         | 57228<br>57248 | 145<br>155       | -40<br>-16        |
| 700<br>725      | 1900         | 57143          | 140              | -10<br>-22        |
| 750             | 1900         | 57216          | 104              | -32               |
| 775             | 1900         | 57176          | 170              | -37               |
| 800             | 1900         | 57177          | 180              | -36               |
| line 1800       |              |                |                  |                   |
| -100            | 1800         | 57236          | -135             | 15                |
| <b>-75</b>      | 1800         | 57158          | -120             | -3                |
| -50<br>25       | 1800         | 57244          | -110             | -3                |
| -25<br>0        | 1800<br>1800 | 57207<br>57173 | -105<br>105      | 5                 |
| 25              | 1800         | 57173<br>57150 | 110              | -2<br>-3          |
| 50              | 1800         | 57118          | 125              | -5<br>-5          |
| 75              | 1800         | 57119          | 135              | -2                |
| 100             | 1800         | 57048          | 101              | 5                 |
| 125             | 1800         | 57036          | -185             | 23                |
| 150             | 1800         | 57247          | -225             | 32                |
| 175             | 1800         | 57240          | -102             | -26               |
| 200             | 1800         | 57172          | 102              | 38                |
| 225             | 1800         | 57185          | 101              | -28               |
| 250             | 1800         | 57285          | 105              | -35               |

| 275 | 1800 | 57231 | 106  | 5          |
|-----|------|-------|------|------------|
| 300 | 1800 | 57180 | 102  | 3          |
| 325 | 1800 | 57276 | 104  | 2          |
| 350 | 1800 | 57316 | 125  | <b>-</b> 5 |
| 375 | 1800 | 57335 | 500  | -10        |
| 400 | 1800 | 57386 | -400 | 21         |
| 400 | 1800 | 57242 | -400 | 21         |
| 425 | 1800 | 57215 | -250 | 12         |
| 450 | 1800 | 57162 | 120  | -18        |
| 475 | 1800 | 57146 | 108  | -1         |
| 500 | 1800 | 57173 | 101  | -34        |
| 525 | 1800 | 57133 | 130  | -41        |
| 550 | 1800 | 57293 | 180  | -28        |
| 575 | 1800 | 57175 | 140  | -37        |
| 600 | 1800 | 57137 | *    | *          |
| 625 | 1800 | 57138 | 140  | 4          |
| 650 | 1800 | 57127 | 150  | 16         |
| 675 | 1800 | 57130 | 165  | 18         |
| 700 | 1800 | 57094 | 135  | 38         |
| 725 | 1800 | 57066 | 160  | 42         |
| 750 | 1800 | 57156 | 135  | -7         |
| 775 | 1800 | 57160 | 125  | -34        |
| 800 | 1800 | 57137 | 140  | -16        |

#### CERTIFICATE

- I, DAVID S. EVANS, currently residing at 5232 Viceroy Dr., N.W., Calgary, AB, T3A OV7, Canada, hereby certify that:
- 1. I am a mining exploration geologist and have practised my profession since 1966.
- 2. I am a graduate of the University of British Columbia with a B.Sc. (1966) in Chemistry and Geology, and a graduate of the Royal School of Mines, University of London (UK) with a Ph.D. (1971) in Applied Geochemistry.
- 3. I am a registered Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, a Member of the Society of Exploration Geochemists, and a Fellow of the Geological Association of Canada (1973).
- 4. I have visited the Aspen and Black Rock Claim Groups on numerous occassions during the period 1984 to 1990. This report is based on work carried out under my supervision and personally collected data and observations.

Aug 31/90

August 31rst, 1990

Sivans

P.Geol.

## APPENDIX 3

# STATEMENT OF

## EXPLORATION EXPENDITURES

| 1. | Geophysical Surveys:   |             | \$2900 |
|----|------------------------|-------------|--------|
| 2. | Geophysical Consulting | and Report: | \$1100 |
| 3. | Air Photographic Study | and Report: | \$2500 |
|    |                        |             |        |

TOTAL EXPENDITURES AND COSTS FOR THIS REPORT: \$6,500.00

