#### ARIS SUMMARY SHEET

istrict Geologist, Victoria

Off Confidential: 90.04.04

ASSESSMENT REPORT 18771

MINING DIVISION: Alberni

ROPERTY:

Stamp

LAT

49 13 00

LONG 124 51 00

10 5452970 365273 UTM

092F02W NTS

CLAIM(S):

Stamp 2-3, Holk, Gloria

OPERATOR(S): Brockton Res.

**AUTHOR(S):** 

Leriche, P.D.; Yacoub, F.F.

REPORT YEAR:

1989, 40 Pages

COMMODITIES

SEARCHED FOR: Copper, Gold

EYWORDS:

Triassic, Karmutsen Formation, Andesite, Chalcopyrite, Malachite

JORK

DONE:

Geochemical

ROCK 22 sample(s);ME

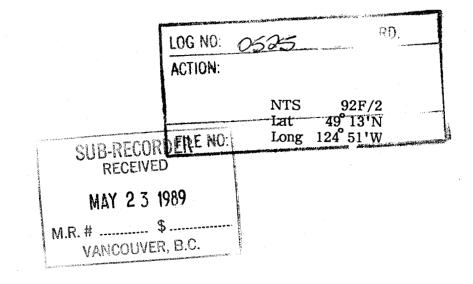
Map(s) - 3; Scale(s) - 1:100,1:10,000

SILT 3 sample(s);ME

RELATED

REPORTS: AINFILE: 11337,15038,17557

092F 155,092F 168



### GEOCHEMICAL REPORT

ON THE

#### STAMP CLAIM GROUP

ALBERNI MINING DIVISION BRITISH COLUMBIA



For

BROCKTON RESOURCES INC. 1000 - 409 Granville Street Vancouver, B.C. V6C 1T2

Ву

Peter D. Leriche, B.Sc., F.G.A.C. Fayz F. Yacoub, B.Sc. ASHWORTH EXPLORATIONS LIMITED

May 15, 1989

#### **SUMMARY**

Ashworth Explorations Ltd performed geological mapping, geochemical rock and soil sampling, on the Stamp Claim Group for Brockton Resources Inc. during April 1989.

The Stamp Claim Group consists of four continguous mineral claims and one reverted crown grant, totalling 56 units. The claims are situated 1.5 kilometres west of Port Alberni, Vancouver Island, B.C.

The subject property is underlain by Triassic andesite volcanic rocks belonging to the Karmutsen Formation. Fractures and faults within the Karmutsen Formation have been infilled with quartz, mineralized with chalcopyrite and pyrite and carry anomalous values in copper and gold.

A second phase exploration program has been recommended. Phase II will consist of further grid layout, soil and rock sampling, geological mapping, magnetometer and VLF-EM geophysics and hand blasting at an estimated cost of \$75,000.

| TABLE   | OF CON    | <u>TENTS</u>                               | Page No.  |
|---------|-----------|--|-----------|
| S       | UMMARY    |  | i         |
| 1. IN   | NTRODUC   | CTION                                      | 1         |
| 2. LO   | OCATION   | , ACCESS AND TOPOGRAPHY                    | . 1       |
| 3. PI   | ROPERTY   | STATUS                                     | . 4       |
| 4. R    | EGIONAI   | GEOLOGY                                    | 4         |
| 5. H    | ISTORY    | AND PREVIOUS WORK                          | 7         |
| 6. 19   | 989 PRO   | GRAM                                       | 12        |
| 6.      | 1 Scop    | e and Purpose                              | 12        |
| 6.      | 2 Meth    | ods and Procedures                         | 12        |
| 7. RI   | ESULTS    |  | 13        |
| 7.      | 1 Rock    | Geochemistry                               | 13        |
| 7.      | 2 Strea   | am Sediment Geochemistry                   | 15        |
| 7.      | 3 Discu   | ssion of Results                           | 15        |
| 8. C    | ONCLUSI   | ONS  | 16        |
| 9. RI   | ЕСОММЕ    | NDATIONS                                   | 16        |
| 10. PI  | ROPOSEI   | D BUDGET                                   | 17        |
| RI      | EFERENC   | CES  | 18        |
| CI      | ERTIFICA  | ATES                                       | 19 & 20   |
| ΓI      | EMIZED    | COST STATEMENT                             | 21        |
| LIST O  | F FIGUE   | RES  |           |
| Figure  | 1:        | General Location Map                       | 2         |
| Figure  | 2:        | Claim Location Map                         | 3         |
| Figure  | 3:        | Regional Geology Map                       | 5         |
| Figure  | 4:        | Property Geology                           | In pocket |
| Figure  | 5:        | Stream Sediment and Rock Geochemistry Map  | 11 11     |
| Figure  | <b>6:</b> | Plan and Assay Results, Dauntless Workings | n .u      |
| LIST O  | F APPEN   | IDICES                                     |           |
| Appendi | ix A:     | Rock Sample Descriptions                   |           |
| Appendi | ix B:     | Analytical Reports                         |           |
| Appendi | x C:      | Analytical Techniques                      |           |

#### 1. INTRODUCTION

This report was prepared at the request of Brockton Resources Inc. to describe and evaluate the results of a geological-geochemical survey carried out by Ashworth Explorations Ltd from April 1 to 3, 1989 on the Stamp Claim Group, Port Alberni Area, Vancouver Island, B.C. The report also describes the regional geology and the past exploration activities in the area, and outlines a proposed exploration program.

One of the authors, Mr. Leriche, who has been involved in geological work in the Port Alberni area since 1979, planned and supervised all fieldwork and examined the subject claims from January 24 to January 26, 1988. Mr. Yacoub was the project geologist on the claims during the 1989 work program.

#### 2. LOCATION, ACCESS AND TOPOGRAPHY (Figures 1 and 2)

The Stamp Claim Group is located approximately 1.5 kilometres due west from Port Alberni on the west coast of Alberni Inlet. The northern tip of Devil's Den Lake approximately marks the northern boundary of the claim group. Cous Creek cuts across the southwest corner of the Stamp #3 claim, entering approximately .5 kilometres to the north along the western claim boundary and leaving approximately 1.1 kilometres to the east along the southern claim boundary.

Access is best obtained by following a main logging road across the Somass River NW of Port Alberni, then following the Cous Creek MacMillan Bloedel logging

Ashworth Explorations Limited

road southward. Several secondary logging roads extend over the property and a two-wheel drive vehicle is suitable for travel.

Elevation varies from sea-level along the west coast of Alberni Inlet to approximately 400 metres at the centre of Stamp #3 claim. Some of the claim group area has seen logging activity, with second growth Douglas fir, hemlock, cedar, salal and alder remaining.

#### 3. PROPERTY STATUS (Figure 2)

The Stamp Claim Group consists of four contiguous claims and one reverted crown grant, in the Alberni Mining Division, as follows:

| CLAIM NAME   | UNITS                          | RECORD NO.                           | RECORD DATE   | EXPIRY DATE   |
|--|--------------------------------|--------------------------------------|---|---|
| Holk<br>Stamp #1<br>Stamp #3<br>Stamp #2<br>Gloria | 12<br>15<br>20<br>8<br>1<br>56 | 2589<br>2746<br>3202<br>3201<br>3401 | May 29/85<br>Nov 18/85<br>Apr 6/87<br>Apr 6/87<br>Nov 26/87 | May 29/90<br>Nov 18/89<br>Apr 6/90<br>Apr 6/90<br>Nov 26/90 |

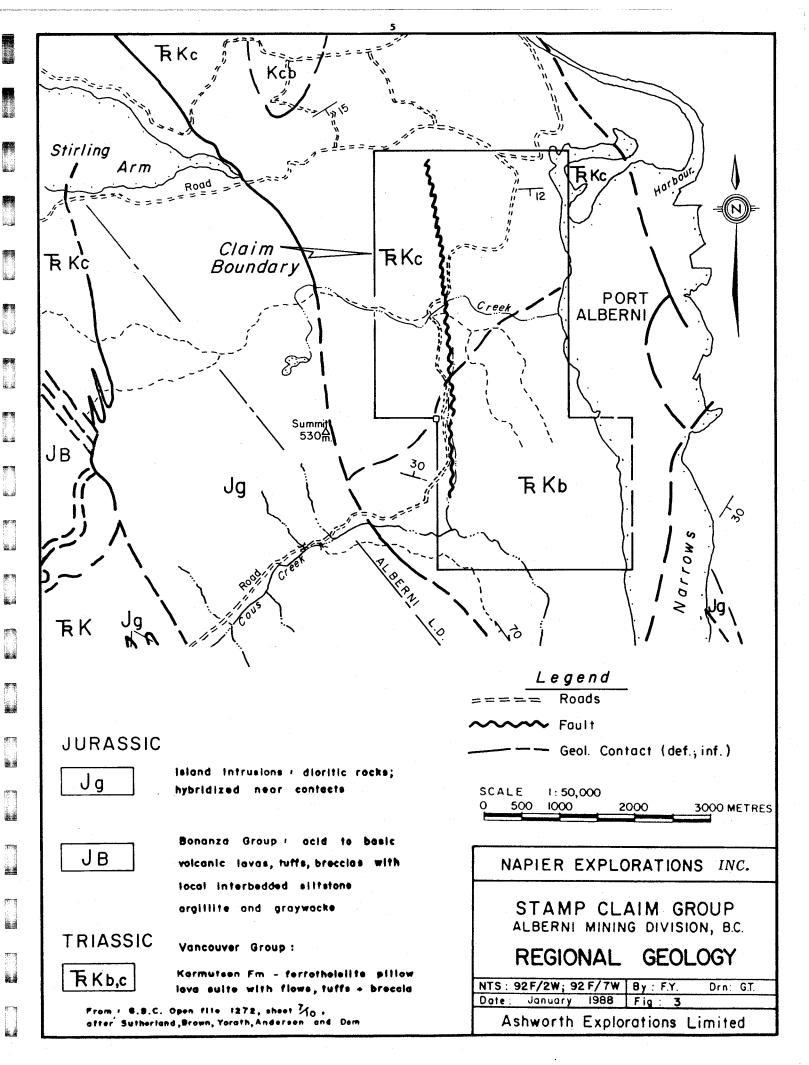
The total area, correcting for overlap, is approximately 55 units or 1375 hectares.

#### 4. REGIONAL GEOLOGY (Figure 3) (Laanela, 1987)

The Stamp claim group area is underlain by a sequence of Mesozoic volcanic and intrusive rocks, which have a NNW regional strike and dip westward.

The oldest rocks, found in the central part of the claims and striking NNW, are the upper Triassic or older Karmutsen Formation volcanics of the Vancouver Group. They consist of massive basaltic flows, pillow basalt and breccia, and minor tuff volcanic breccia.

Further west, approximately 7 kilometres from the western edge of the claim group, the volcanics are overlain by a belt of Quatsino Formation, mainly massive to thick bedded limestone, which, in turn, is succeeded by Parsons Bay Formation shale and argillite. These two



formations are Upper Triassic in age and form the uppermost part of the Vancouver Group.

West of the Quatsino Formation, the Vancouver Group rocks are disconformably overlain by Lower Jurassic Bonanza Group, consisting of andesitic to dacitic volcanic rocks, including breccia, porphyry and tuffs, and minor intercalated beds of argillite and graywacke.

Approximately .5 kilometres west of the claim group, the Vancouver Group rocks, mainly the Karmutsen Formation here, are penetrated by

batholithic Island Intrusions of Jurassic age, ranging from granite to

granodiorite to quartz diorite.

The Sicker Group rocks, oldest on the island, are not known to occur in the property area, although they are quite common east of the Alberni Inlet.

The youngest rocks in the area are the dacitic "feldspar porphyry" dykes, intruding the older rocks. These "later intrusives" are generally taken to be Tertiary in age (related to Sooke and/or Catface intrusions elsewhere on the island).

The main structural feature is a series of major NW to NNW trending faults affecting mainly the Vancouver Group rocks here. These faults were probably formed during the late Triassic time.

The Vancouver Group rocks, particularly the Karmutsen volcanics, are known to host several mineralized occurrences in the Alberni Inlet area. The following showings have been reported in the Cous Creek-Alberni Inlet area:

- 1. <u>Cous Creek Showings</u>(Skarn Claim), approximately 4 kilometres west of the western mid-point of the Stamp 3 claim, consist of massive sulphide lenses and pods in volcanics near the diorite contact. Later (Tertiary?) dykes are also present in the area (B.C.A.R. #6956, 1977, and #6393, 1977, et al).
- 2. Kola Showing, approximately 7 kilometres WSW of the SW corner of the Stamp 3 claim. Exploration discovered mineralization consisting of massive pods and lenses of pyrite and chalcopyrite associated with andesites of Karmutsen Formation; also, siliceous shear zones and sulphides associated with dacites were evident. Assays were reported to range up to 0.328 opt Au, 4.71 opt Ag and 29.2% Cu (Sookochoff, 1985;B.C.A.R. #101288, 1982 and #9913, 1981).
- 3. Rex Showing, at headwaters of Cous Creek, about 4 kilometres SSE of Kola Showing (above). Cu and Mo is reported (B.C.A.R. #1591, 1968; B.C.M.M., 1967, p. 77, et al).
- 4. Raven Prospect, (on the Stamp Claim Group) near west shore of Alberni Inlet, opposite the town of Port Alberni.

- 5. <u>Dauntless Prospect</u>, (Gloria Crown Grant 258G, part of the Stamp Claim Group), west side of Alberni Inlet near Stamp Narrows, approximately 2 kilometres south of the Raven Prospect.
- 6. B and K Prospect, (Crown Grant 136G), about 1 kilometre S of the Stamp 3 claim's southern boundary and .5 kilometres W of the west coast of Alberni Inlet. A north-trending steeply dipping, 5 foot wide shear contains Cu mineralization with the reported estimated grade of 1%. This showing is also known as the Cous Creek Copper Showing (Laanela, et al, 1966).
- 7. Hayes Mine, a number of Crown Grants, some 18 kilometres S of Stamp 3 claim's southern boundary. Historically, it was the most productive property in the area. An intraformational limestone horizon host skarn-type mineralized zones up to 28 feet wide which contain magnetite, pyrite and chalcopyrite. There are no intrusive outcrops related to the skarn mineralization. It is also known as the Nahmint Mine (B.C.M.M., 1898, pp. 1131; 1901, p. 1095; 1906, p. H193).

#### 5. HISTORY AND PREVIOUS WORK

According to old B.C. Minister of Mines (B.C.M.M.) reports dating back to late 1800's much mining exploration and shipping of small amounts of ore has been carried out in the Alberni Inlet area since 1898. Some of the highlights concerning the properties are:

- The Hayes (Nahmint) Mine, some 18 kilometres to the south, reportedly shipped 2180 tons of ore during 1898 1902, yielding 328,245 lbs of Cu, 62 ozs Au and 2917 ozs Ag. It was closed in 1902.
- The original Cous Creek property, now the Skarn claim was discovered in 1972 and explored by Craigmont Mines in 1976 and Bethlehem Copper in 1977. Exploration work is continuing at the present in this area for skarn-type mineral deposits. (Laanela, 1987)

Most of the past work and documentation on the Stamp Claim Group has been completed on the Dauntless and Raven Prospects.

#### Dauntless Prospect (Minfile #168)

The Dauntless prospect is an old copper showing, located on the west coast of Alberni Inlet on the Gloria Crown Grant at Stamp Point (Figure 2). This showing was located when the fieldwork for this report was carried out in January and February 1988.

Reference to this prospect is first documented in B.C.M.M. Annual Report 1918 when a small shipment of sacked ore was made and an assay taken from the dump remaining. Results indicated trace Au and Ag and 2.2% Cu. In the 1924 B.C.M.M. Annual Report, exploration work consisted of three open-cuts which were to test the two series of shear zones present. In the 1927 Annual Report, it was mentioned that a shaft of 27 foot depth had been sunk. It appeared well mineralized with both pyrrhotite and chalcopyrite. The district geologist of the time believed that the Dauntless was a most promising showing, and that a tunnel should be driven under the shaft to determine the extent of the oreshoot. It does not appear that significant additional work was completed after the 1927 Report, as the 1931 Annual Report repeats the recommendations made in 1927.

#### Raven Prospect (Minfile #155)

The Raven prospect is located approximately 200 metres west of the west coast of the Inlet, and 250 metres south of Hoik Island (Figure 2). The prospect

consists of three veins with "values" (B.C. Minister of Mines Report, 1898). The width and tenor of mineralization was not reported.

#### Recent Exploration

Exploration work has been carried out on this claim group in the more recent past. beginning in 1960 by Cruikshank Explorations Ltd. Three diamond drill Hole #1 is located 19 metres south of the southeast holes were completed. corner of the Gloria Crown Grant and 19 metres west of the west coast of Alberni Inlet. It was drilled at an angle of 45 degrees, S70 W. This 150 metre hole intersected varying concentrations of chalcopyrite, at depth, from 62.5 to Hole #2 is approximately 380 metres south of the southeast corner of the Gloria Crown Grant and five metres west of the Inlet's west coast. hole was drilled at 45 degrees, approximately west to a depth of 152 metres with minor amounts of chalcopyrite and pyrite observed. The third diamond drill hole, according to the present grid, should be located at approximately at L42N 4+50 E to a depth of 309 metres. It was drilled at 45 degrees, to the south to a depth of 309 metres, and intersected chalcopyrite at 80 to 83 metres and again at 86 to 89 metres. No assays were reported or shown to have been done (Chapman, Wood, Griswold, 1961).

In the 1961 field season, ground traverses were completed with recommendations made for the following year.

In 1962 several surveys were completed by Cruickshank Explorations Ltd. on the property following the recommendations made the previous year. These included the completion of a topographic base map, survey control, ground magnetometer

survey, ground AF Mag survey, geological mapping, reconnaissance-type I.P. and resistivity survey, followed by detailed survey, and investigation of the strongest I.P. anomaly by means of a diamond drill hole.

The radar magnetometer and AF Mag surveys revealed no significant anomalies. The geological mapping and study of petrographic thin sections revealed errors made in previous rock identification. It was determined that no sedimentary rocks were present. The I.P. survey, conducted using a 300 foot electrode configuration with some detail work at 100 foot spreads, revealed a weak anomalous zone in the northern part of the property. This zone is present 76 metres south-southwest of DDH #3 (approximately at L42N 4+50E), extending over 305 metres. Diamond drill hole #4 was utilized to test the anomaly. The hole, the location of which is unknown, dipped 45 degrees to a depth of 350 feet to the west and contained minor amounts of sulphide at intervals from 43 to 49 metres and 67 to 73 metres. Assay results of the mineralized intersections contained .06 and .04 % Cu respectively (Bell, 1962).

Regional mapping, geochemical sampling surveys and general prospecting were performed in the area west of Alberni Inlet in 1965 by Gunnex Limited. The area of the I.P. anomalies was prospected with only minor Cu mineralization noted (Laanela, 1966).

In 1983 a ground electromagnetic (EM-16 VLF) survey was performed by Gearex Engineering for International Phasor Telecom Ltd. The survey covered an area approximately 400 by 1000 metres in a NW trend over the current boundaries of the Stamp 2, Holk and Stamp 3 claims. Its purpose was to detect conductive

zones which could indicate the presence of faults, fissures, or even massive sulphide zones. The results identified several conductive zones. These were thought to possibly correspond with the earlier I.P. anomalies, but additional correlative work appears not to have been done (von Rosen, 1983).

A geological examination of the Holk and Stamp 1 claims was completed in 1986 for United Chieftain Resources Ltd., involving mapping at a scale of 1:5000. Results were consistent with earlier work completed in the area (Royer, 1986).

A program of geological mapping and rock and soil sampling was completed in January and February 1988 by Ashworth Explorations Ltd for Napier Explorations Inc. (now named Brockton Resources Inc.). Three main anomalous zones were outlined by the sampling.

The Devil's Den showing, located at 37+00N 8+00W, included a 20 centimetre wide quartz vein, mineralized with pyrite and chalcopyrite, which assayed up to 4150 ppb gold (.12 oz/ton) and 2567 ppm copper. This showing was associated with a north-south trending fault.

The Raven area, located at 28+00N 5+50E, included two 20 centimetre wide quartz veins mineralized with pyrite and chalcopyrite. The assay results included anomalous copper (2404 to 6809 ppm), silver (one sample, 12.7 ppm), and gold (one sample, 195 ppb).

The southern grid area (Dauntless Area) was defined by copper, zinc and gold soil anomalies and significant rock sample assay results. A 10 to 60 centimetre

wide and 12 metre long quartz vein yielded an average copper value of 16,698 ppm (1.7%) copper, with anomalous silver and gold. Select dump material samples assayed up to 72,051 ppm (7.2%) copper.

Anomalous soil geochemistry in both the Raven and Souther Grid areas indicate that the mineralized veins could continue along strike (Leriche and Yacoub, 1988).

#### 6. 1989 WORK PROGRAM

#### 6.1 SCOPE AND PURPOSE

The purpose of the program was to locate and rock sample mineralized showings in addition to those previously located.

#### 6.2 METHODS AND PROCEDURES

Control for sampling was established using the 1988 grid. Compass, hipchain, and altimeter were utilized to help pinpoint exact locations. Results and sample locations were plotted on 1:10,000 and 1:100 scale maps (Figures 5 and 6).

A total of 23 rock samples and three stream sediment samples were collected and analyzed for gold (fire assay/AAS) and multi-element ICP. Two rock samples were re-assayed for gold by gravimetric methods and 16 samples were assayed for copper by atomic absorption to determine values in percent units.

#### 7. RESULTS

#### 7.1 ROCK GEOCHEMISTRY

Follow-up rock sampling was performed at the Devil's Den and Dauntless workings which had been located during the January-February 1988 program. Reconnaissance prospecting was also performed which resulted in the discovery of a new showing at the southeast corner of the Stamp 3 claim.

#### Devil's Den Workings (Grid Coordinates 37+00N 8+00W) (Figure 5)

This showing is thought to be associated with a major north-south fault which transects the property. Two rock samples were collected. Sample ST89-FR13, a chip sample collected across 30 centimetres of a light gray, silicified andesitic volcanic rock, assayed .068 oz/ton gold. This sample was taken 7.0 metres east and along strike with 1988 sample ST88-R56 which assayed 0.12 oz/ton gold.

#### Dauntless Workings (Grid Coordinates 4+00N 5+00E) (Figure 6)

The 1988 sampling outlined a 12 metre long 30 centimetre wide quartz vein, mineralized with pyrite and chalcopyrite (up to 25%) which averaged 1.7% copper.

In 1989, a second adit was discovered 25 metres east of the Dauntless adit which had been located in 1988. This second adit, 16 metres long, had been drifted along a 12 metre long quartz-calcite vein striking at 230 to 250 degrees, dipping 50 degrees south. The vein is strongly stained with malachite and contains up to 30% combined pyrite and chalcopyrite.

The writers believe that the two Dauntless quartz veins are along separate fault zones.

Significant results from the 1989 sampling include the following:

| SAMPLE NO. | SAMPLE<br>TYPE | WIDTH<br>(cm) | Cu(%) | RESULTS<br>Ag(ppm) | Au(ppb)      |
|------------|----------------|---------------|-------|--------------------|--------------|
| ST89-FR2   | Grab           |               | 0.91  | 10.1               |              |
| ST89-FR3   | Chip           | 40            | 0.63  |                    |              |
| ST89-FR4   | Chip           | 30            | 2.51  |                    |              |
| ST89-FR5   | Chip           | 50            | 4.73  |                    |              |
| ST89-FR6   | Chip           | 50            | 1.15  |                    |              |
| ST89-FR7   | Chip           | 30            | 0.82  |                    | and the sale |
| ST89-FR8   | Chip           | 35            | 0.90  |                    |              |
| ST89-FR9   | Chip           | 25            | 13.00 | 13.9               | 290          |
| ST89-FR10  | Chip           | 20            | 1.54  |                    |              |
| ST89-FR11  | Chip           | 10            | 0.43  |                    |              |
| ST89-FR19  | Select         |               | 10.80 | 18.4               |              |

The chip sampling along a ten metre length averages 2.9% copper across 30 centimetres.

Sample ST89-FR1 (Figure 5), taken across the malachite-stained shear zone 30 metres east of the newly-located adit, assayed 1.35% copper.

#### Southeast Showing (Figure 5)

Located in the southeast corner of the Stamp #3 claim, this showing is a 25 centimetre wide silicified, pyritized shear zone striking 145 degrees with a vertical dip. The zone contains 5% pyrite and minor chalcopyrite. Two chip samples were collected across 25 centimetres. Sample ST89-FR15 assayed .048 oz/ton gold and 0.85% copper, while sample ST89-FR16 assayed 1.97% copper.

#### 7.2 STREAM SEDIMENT GEOCHEMISTRY

No significant results were obtained from three samples collected from the central part of the claim group.

#### 7.3 DISCUSSION OF RESULTS

The April 1989 rock sampling has delineated two additional areas of interest.

The Devil's Den workings are located along a 20 to 30 centimetre wide quartz vein and silicified shear zone. Limited rock sampling to date has yielded two anomalous gold values of .068 and .120 oz/ton.

The second area extends from the Dauntless showings to the southeast corner of the Stamp #3 claim. The Dauntless showings consist of two parallel quartz-infilled shear zones mineralized with up to 30% combined pyrite-chalcopyrite-malachite. Both zones have outlined average copper grades of 1.7% and 2.9% across 30 centimetres and along ten to 12 metres.

The Southeast showing (one kilometre south from the Dauntless showings) is a silicified east-west pyritic shear similar to the Dauntless. Copper values of 0.85% and 1.97% and a gold value of .048 oz/ton were obtained.

#### 8. CONCLUSIONS

Both writers conclude that the Stamp Claim Group has potential for hosting an economic copper-gold vein deposit for the following reasons:

- The geological environment (fractured volcanic rocks in contact with an intrusive pluton) is favourable for hosting mineralized quartz veins. Structural faults and shears found on the Stamp Claim Group may have acted as conduits for mineralizing hydrothermal solutions.
- Potential economic grade copper and gold mineralization has been located at the Dauntless and Southeast showings.
- Potential economic grade gold results have been found at the Devil's Den workings.

#### 9. RECOMMENDATIONS

#### Phase II

- 1) Lay out approximately 40 kilometres of additional grid. The grid should be extended to the southern boundary of the claims at 100 metre line spacings. Fill-in lines should be put in at 100 metre line spacings from L10+00N to L0 and from L26+00N to L34+00N.
- 2) Soil sample the new grid at 50 metre stations to better delineate the soil anomalies found on the south grid area (Dauntless) and the Raven area.
- 3) Perform a magnetometer and VLF-EM survey on the new grid. This survey, in conjunction with soil surveys, would be useful for delineating future trenching and drill targets.
- 4) Geologically map and sample the new grid in detail.
- 5) All three known showings (Dauntless, Devil's Den, Raven) should be geologically mapped, rock sampled, and soil sampled in detail.
- 6) Blast the three known showings to locate mineralization along strike.

# 10. PROPOSED BUDGET

# PHASE II

| (One Geologist, Three Geotechnicians, Operator; 13 Field Days)                           | One Blaste            | er, One | Geophysical        |
|--|-----------------------|---------|--------------------|
| Project Preparation  |                       |         | \$ 1,000           |
| Mob/Demob  |                       |         | \$ 1,800           |
| Field Crew   |                       |         | \$ 16,185          |
| Field Costs  |                       |         | \$ 11,185          |
| Geophysics:<br>Magnetometer and VLF-EM Survey  |                       |         | \$ 14,400          |
| Lab Analysis:<br>Say 600 soil samples @ \$14/sample<br>Say 50 rock samples @ \$18/sample | \$ 11,200<br>\$ 1,260 |         |                    |
|  |                       |         | \$ 12,460          |
| Supervision and Report   |                       |         | \$ 8,600           |
| Sub-total  |                       |         | \$ 65,630          |
| Administration 15%   |                       |         | \$ 9,844           |
| Total  |                       |         | \$ 75,474          |
|  |                       | (Say    | <u>\$ 75,000</u> ) |

Respectfully submitted

Peter D. Leriche,

Fayz F. Yacoub, B.Sc.

#### REFERENCES

- B.C. Minister of Mines Annual Report, 1898.
- B.C. Minister of Mines Annual Report, 1918.
- B.C. Minister of Mines Annual Report, 1924.
- B.C. Minister of Mines Annual Report, 1927.
- B.C. Minister of Mines Annual Report, 1931.
- B.C. Minister of Mines Minfile Reference 155, 1984.
- B.C. Minister of Mines Minfile Reference 168, 1984.
- Chapman, Wood & Griswold Ltd., 1961. Reconnaissance Report on Mineral Claim Holdings of Cruikshank Explorations Ltd., Port Alberni, B.C.
- Chapman, Wood & Griswold Ltd., 1962. Final Report on Mineral Claim Holdings of Cruikshank Explorations Ltd. Port Alberni, B.C.
- Hallof, P.G. and Bell, R.A., 1962. Report on Geophysical Survey(Induced Polarization) on the Alberni Property on Vancouver Island, B.C. for Cruickshank Explorations Limited. Assessment Report 447.
- Laanela, H., 1965, Revised 1987. Memo Re: Mineral Occurrence #25: Dauntless Copper Showing. Unpublished.
- Laanela, H., 1966, Memo Re: Review of Mineral Occurrence #25. Unpublished.
- Laanela, H., 1987, Report on the Geological, Geochemical and Magnetic Surveys on Otter Claim Group, Alberni Mining Division, B.C. for Veto Resources Ltd.
- Royer, G.A., 1986. Geological Report on the Holk Claim Group, Vancouver Island, Alberni Mining Division, for United Chieftain Resources Ltd.
- von Rosen, G., 1983. Assessment Geophysical Report (EM16) on the Stamp: Stamp Point near Gloria & Gold Stamp 2 Mineral Claims, Port Alberni Area, Alberni Mining Division, for International Phasor Telecom Ltd. Assessment Report 11,337.

#### **CERTIFICATE**

- I, PETER D. LERICHE, of 3612 West 12th Avenue, Vancouver, B.C., V6K 2R7, do hereby state that:
- 1. I am a graduate of McMaster University, Hamilton, Ontario, with a Bachelor of Science Degree in Geology, 1980
- 2. I am a Fellow in good standing with the Geological Association of Canada.
- 3. I have actively pursued my career as a geologist for nine years in British Columbia, Ontario, Yukon and Northwest Territories, Arizona, Nevada and California.
- 4. The information, opinions, and recommendations in this report are based on fieldwork carried out under my direction, and on published and unpublished literature. I was present on the subject property from January 24 to 26, 1988.
- 5. I have no interest, direct or indirect, in the subject claims or the securities of Brockton Resources Inc.
- 6. I consent to the use of this report in a Prospectus or Statement of Material Facts for the purpose of private or public financing.

ASHWORTH EXPLORATIONS IN THE

P. D. LERICHE

Peter D. Leriche, B.Sc., F.G.A.C.

Dated at Vancouver, May 15, 1969

#### **CERTIFICATE**

- I, FAYZ F. YACOUB, of 13031 64th Avenue, Surrey, British Columbia, V3W 1X8, do hereby declare:
- 1. That I am a graduate in geology and chemistry from Assuit University, Egypt (B.Sc. 1967), and Mining Exploration Geology of the International Institute for Aerial Survey and Earth Sciences (I.T.C.), Holland (Diploma 1978).
- 2. I have actively pursued my career as a geologist for the past fifteen years.
- 3. The information, opinions, and recommendations in this report are based on fieldwork carried out by myself, and on published and unpublished literature. I was present on the subject property on April 1 to 3, 1989.
- 4. I have no interest, direct or indirect, in the subject claims or the securities of Brockton Resources Inc.
- 5. I consent to the use of this report in a Prospectus or Statement of Material Facts for the purpose of private or public financing.

#### ASHWORTH EXPLORATIONS LIMITED

Fayz F. Yacoub, B.Sc.

Dated at Vancouver, May 15, 1989

# ITEMIZED COST STATEMENT - STAMP #2, 3, HOLK CLAIMS AND GLORIA REVERTED CROWN GRANT

(Geologist, Prospector, April 1-3/89 - 3 field days)

| Project Preparation   |       |                 | \$<br>150          |
|---|-------|-----------------|--------------------|
| Mob/Demob (includes transportation, freight and w                                 | ages) |                 | 700                |
| Field Crew<br>Field Geologist \$275/day x 3 days<br>Prospector \$240/day x 3 days | \$    | 825<br>720      | 1,545              |
| Field Costs Food and Accommodation \$70/day x 6 mandays Communications Supplies   | \$    | 420<br>75<br>75 |                    |
| 1 4X4 Truck \$110/day x 3 days  |       | 330             | . 900              |
| Lab Analysis 22 rock samples @ \$18/sample (Au by FA/AA, Multi-element ICP)       |       |                 | 396                |
| Supervision and Report  |       |                 | 1,075              |
| Sub-total   |       |                 | \$<br>4,766        |
| Administration 15%  |       |                 | 715                |
| Total   |       |                 | \$<br><u>5,481</u> |

Respectfully submitted,

Peter D. Leriche, H.Sc., F.

P. D. LERICHE F.G.A.C.

EFLLOW

Fayz F. Yacoub, B.Sc.

# APPENDIX A

ROCK SAMPLE DESCRIPTIONS

# ROCK SAMPLE DESCRIPTIONS - STAMP CLAIM GROUP

| SAMPLE NO. | DESCRIPTION  | WIDTH(cm) |
|------------|--|-----------|
| ST89-FR1   | Chip; Shear zone. Dark gray, sheared, friable volcanic rocks with malachite and 2% disseminated pyrite.  | 30        |
| STE89-FR2  | Grab; Silicified, light gray bleached volcanic, minor malachite, trace disseminated pyrite. Sample from wall rock at adit portal.  | ·         |
| ST89-FR3   | Chip; Sheared, light gray volcanic, up to 30% disseminated pyrite, minor chalcopyrite, strong green malachite in quartz-calcite vein 40 cm wide.                               | 40        |
| ST89-FR4   | Chip; Shear zone striking 228/48SE, quartz-calcite vein with disseminated pyrite and malachite staining hosted by sheared, bedded light gray andesite.                         | 30        |
| ST89-FR5   | Chip; Massive to disseminated pyrite (10%) and strong malachite in sheared crumbly weathered volcanic.   | 50        |
| ST89-FR6   | Chip; Rusty, weathered, dark gray to brown volcanic hosting quartz vein 15 cm wide, heavy sulphides, mainly pyrite, chalcopyrite (up to 40%), green malachite.                 | 50        |
| ST89-FR7   | Chip; Sheared, weathered, crumbly volcanic rock with green malachite, minor pyrite in 7 cm wide quartz vein.   | 30        |
| ST89-FR8   | Chip; Same shear zone as ST89-FR7.   | 35        |
| ST89-FR9   | Chip; Strong pyrite (up to 15%), malachite staining in quartz-calcite vein striking 250/50SE hosted by bleached light gray volcanic.   | 25        |
| ST89-FR10  | Chip; Same shear zone as ST89-FR9. Malachite staining, no pyrite.  | 20        |
| ST89-FR11  | Chip; Sheared, weathered, crumbly, barren volcanic rock.   | 10        |
| ST89-FR12  | Chip; Shear zone at end of adit. Disseminated pyrite (5%), no malachite.   | 20        |
| ST89-FR13  | Chip; Silicified, light gray aphanitic andesite with<br>no obvious mineralization. Seven metres along strike<br>of small quartz vein in shallow pit (Devil's Den<br>Workings). | 30        |

| ST89-FR14 | Float; Angular massive quartz vein material. No sulphides.   |                 |
|-----------|--|-----------------|
| ST89-FR15 | Chip; Silicified, pyritized shear zone striking 32590, 30 cm wide, light gray silicified volcanic. Disseminated pyrite (5%), minor chalcopyrite, malachite staining in quartz veinlets 2 to 5 mm wide.     | 25              |
| ST89-FR16 | Chip; Light gray altered aphanitic andesite with trace pyrite. Wallrock of shear zone sampled by ST89-FR15.  | 25              |
| ST89-FR17 | Grab; Shear zone 90 cm wide, striking 280/82S exposed in adit portal 10 metres west of shore. Light to dark gray bleached andesite, 2-5% pyrite, minor chalcopyrite and malachite, 2-3 mm quartz veinlets. |                 |
| ST89-FR18 | Grab; From dump of shaft. Light gray silicified volcanic, disseminated pyrite, minor pyrrhotite, 10% Fe oxides in vugs, slightly magnetic.   |                 |
| ST89-FR19 | Select; Heavy concentration of quartz veins in shear zone. Up to 60% sulphides (disseminated to massive pyrite, chalcopyrite) and malachite staining.  | 20              |
| ST89-VR1  | Grab; Quartz lens, 1% disseminated pyrite hosted by dark gray fine-grained andesite.   | <del></del>     |
| ST89-VR2  | Grab; Quartz lens hosted by gray andesite, trace pyrite.   | , <del></del> - |
| ST89-VR3  | Grab; Quartz lens hosted by gray andesite with trace pyrite.   |                 |
| ST89-VR4  | Chip; Light gray aphanitic volcanic with trace pyrite (<1%)  | 50              |

APPENDIX B

ANALYTICAL RESULTS



BRANCH OFFICES PASADENA, NFLD. BATHURST, N.B. MISSISSAUGA, ONT. RENO, NEVADA, U.S.A.

# GEOCHEMICAL ANALYTICAL REPORT

CLIENT: ASHWORTH EXPLORATION LTD.

DATE: April 11 1989

ADDRESS: 1010 - 789 W. Pender Street

: Vancouver, B.C.

REPORT#: 890164 GA

: V6C 1H2

JOB#: 890164

PROJECT#: 275

SAMPLES ARRIVED: April 07 1989

REPORT COMPLETED: April 11 1989

ANALYSED FOR: Au (FA/AAS) ICP

INVOICE#: 890164 NA

TOTAL SAMPLES: 26

SAMPLE TYPE: 26 rocks

REJECTS: DISCARDED

SAMPLES FROM: ASHWORTH EXPLORATION LTD. COPY SENT TO: ASHWORTH EXPLORATION LTD.

PREPARED FOR: MR. PETER LERICHE

ANALYSED BY: VGC Staff

SIGNED:

GENERAL REMARK: None



**BRANCH OFFICES** PASADENA, NFLD. BATHURST, N.B. MISSISSAUGA, ONT. RENO, NEVADA, U.S.A.

PAGE 1 DF 1

| REPORT NUMBER: 890164 GA   | JOB NUMBER: 890164 | ASHWORTH EXPLORATION LTD. |
|----------------------------|--------------------|---------------------------|
| SAMPLE #                   | Áu                 |                           |
|                            | ppb                |                           |
| ST-89-FR-01                | 50                 |                           |
| ST-89-FR-02                | ВО                 |                           |
| ST-89-FR-03                | 35                 |                           |
| ST-89-FR-04                | 55                 |                           |
| ST-89-FR-05                | 70                 |                           |
|                            |                    |                           |
| ST-89-FR-06                | 40                 |                           |
| ST-89-FR-07                | 30                 |                           |
| ST-89-FR-08                | 35                 |                           |
| ST-89-FR-09                | 290                |                           |
| ST-89-FR-10                | 40                 |                           |
| ST-89-FR-11                | 05                 |                           |
| ST-89-FR-12                | 25                 |                           |
| ST-89-FR-12                | 20                 |                           |
|                            | 2500               |                           |
| ST-89-FR-14<br>ST-89-FR-15 | 30                 |                           |
| 51-83-LK-12                | 1290               |                           |
| ST-89-FR-16                | 50                 |                           |
| ST-89-FR-17                | 60                 |                           |
| ST-89-FR-18                | 30                 |                           |
| ST-89-FR-19                | 80                 |                           |
| ST-89-VR-01                | 30                 |                           |
|                            |                    |                           |
| ST-89-VR-02                | 25                 |                           |
| ST-89-VR-03                | 30                 |                           |
| ST-89-VR-04                | 45                 |                           |
| ST-B9-VT-01                | 30                 |                           |
| ST-89-VT-02                | 40                 |                           |

ST-89-VT-03

30

# 1988 If Lumph Street, Vancouver, S.C. VSL 1K5 Ph: (604)251-5656 Fax: (604)254-5717

#### ICAP GEOCHEMICAL ANALYSIS

A .5 gram sample is digested with 5 ml of 3:1:2 HCl to HMO<sub>3</sub> to H<sub>2</sub>O at 95 °C for 90 minutes and is diluted to 10 ml with water.

This leach is partial for Al, Ba, Ca, Cr, Fe, K, Mg, Mn, Ma, P, Pd, Pt, Sn, Sr and W.

| REPORT 8: 890164 PA        |             | <b>A</b>                   | SHNORTH | EXPL      |      | Pı        | oj: 27 | 5          |            | Date     | la: 89/ | 04/07  | Date         | Dut:89       | /04/11      | At t     | : P LER      | ICHE     |       |          |           |           |          |          | Pag      | e 10      | of 1     |           |
|----------------------------|-------------|----------------------------|---------|-----------|------|-----------|--------|------------|------------|----------|---------|--------|--------------|--------------|-------------|----------|--------------|----------|-------|----------|-----------|-----------|----------|----------|----------|-----------|----------|-----------|
| Sample Humber              | Ag          | Al                         | Ās      | Au        | Ja   | Bi        | Ca     | Cd         | Co         | Cr       | Cu      | Fe     | K            | Mg           | Ħn          | fio      | Na           | Ni       | P     | Pb       | Pd        | Pt        | Sb       | Sn       | Sr       | U         | ¥        | 10        |
| ST- <b>B9-</b> FR-01       | ppa         | 1 4 97                     | ppe     | ppe<br>(3 | ppe  | ppe<br>3  | 0.53   | ppm        | pps<br>oz  | ppe      | ppe     | X      | 7.<br>0.47   | 2.00         | pps         | pps<br>3 | 2 21         | ppa      | 1     | ppa      | ppe       | ppe       | ppe      | ppe      | ppe      | ppe       | ppa      | 991<br>14 |
| ST-89-FR-02                | 2.4         | 4.97<br>5.32               | 11      | (3        | Š    | 3         | 0.33   | 3.9<br>4.6 | 97         | 66<br>77 |         | >10.00 | 0.52         | 2.88<br>3.14 | 1016<br>888 | 3        | 0.01         | 72<br>73 | 0.04  | 50<br>46 | (3        | <b>(5</b> | ⟨2<br>⟨2 | ⟨2       | 10<br>4  | (5<br>(5  | (3<br>(3 | 33        |
| 51-89-FR-03                | 10.1<br>1.8 | 6.14                       | ⟨3      | ·{3       | 10   | 3         | 0.98   | 3.6        | 129<br>104 | 70       |         | >10.00 | 0.53         | 3.17         | 1133        | 2        | 0.01         | /3<br>64 | 0.03  | 37       | <b>(3</b> | (5<br>(5  | ⟨2       | 14       | •        | (5        | (3       | 24        |
|                            |             |                            |         |           | 10   | •         | 0.73   | 6.9        |            |          | )20000  |        |              |              |             | 4        |              |          | 0.05  | 74       | (3        | (5        | (2       |          | 30       | (5        | (3       | 34:       |
| 3T-89-FR-04<br>5T-89-FR-05 | 7.1<br>7.4  | <b>5.52</b><br><b>4.77</b> | (3      | (3<br>(3  | 7    | <b>(3</b> | 0.67   | 9.1        | 144<br>161 |          | >20000  |        | 0.51<br>0.51 | 3.46<br>3.20 | 1117<br>975 | 5        | 0.01<br>0.01 | 63<br>64 | 0.03  | 104      | (3        | (5        | ⟨2       | 10<br>12 | 13<br>52 | <b>(5</b> | (3       | 36        |
| ST-89-FR-06                | 6.1         | 5.99                       | ⟨3      | (3        | 5    | 3         | 0.57   | 4.1        | 121        | 65       | 10082   |        | 0.50         | 3.78         | 1111        | 2        | 0.01         | 51       | 0.06  | 50       | (3        | ⟨5        | ₹2       | 8        | 7        | ⟨5        | (3       | 24        |
| ST-89-FR-07                | 2.7         | 6.02                       | (3      | ⟨3        | 5    | 4         | 0.58   | 3.5        | 124        | 95       | 7025    | >10.00 | 0.50         | 3.54         | 1143        | 3        | 0.01         | 40       | 0.06  | 43       | ₹3        | ₹5        | ⟨2       | 8        | 6        | ₹5        | ⟨3       | 19        |
| ST-89-FR-08                | 2.7         | 7.04                       | ⟨3      | ⟨3        | 5    | 3         | 0.56   | 4.5        | 155        | 69       |         | >10.00 | 0.61         | 4.05         | 1366        | 2        | 0.01         | 59       | 0.07  | 39       | ₹3        | ₹5        | ⟨2       | 6        | 10       | ₹5        | (3       | 23        |
| ST-89-FR-09                | 13.9        | 3.50                       | 218     | ₹3        | 2    | ₹3        | 0.24   | 10.3       | 265        |          | >20000  |        | 0.66         | 2.17         | 631         | 13       | 0.01         | 71       | 0.01  | 213      | ⟨3        | ₹5        | ⟨2       | 6        | 5        | ⟨5        | (3       | 14        |
| iT-89-FR-10                | 2.4         | 6.13                       | (3      | ₹3        | 6    | 3         | 0.40   | 4.1        | 127        | 69       | 14048   | >10.00 | 0.52         | 3.75         | 1144        | 2        | 0.01         | 49       | 0.06  | 60       | ₹3        | ⟨5        | ₹2       | 3        | 15       | ₹5        | ⟨3       | 16        |
| IT-89-FR-11                | 0.4         | 7.19                       | ⟨3      | ⟨3        | . 8  | 3         | 0.51   | 3.5        | 86         | 79       |         | >10.00 | 0.50         | 5.04         | 1079        | 1        | 0.01         | 56       | 0.08  | 34       | ⟨3        | ⟨5        | (2       | 2        | 14       | ⟨5        | ⟨3       | 14        |
| T-89-FR-12                 | 0.6         | 5.35                       | 20      | ₹3        | 3    | 4         | 0.59   | 4.3        | 112        | 55       | 776     | >10.00 | 0.66         | 3.69         | 1096        | 2        | 0.01         | 72       | 0.05  | 38       | ₹3        | ⟨5        | ₹2       | 10       | 21       | ⟨5        | ⟨3       | 4         |
| T-89-FR-13                 | 0.2         | 3.50                       | 3       | ⟨3        | 8    | ⟨3        | 0.36   | 1.9        | 43         | 249      | 89      | 5.55   | 0.25         | 3.89         | 987         | 2        | 0.01         | 84       | 0.02  | 24       | ₹3        | ₹5        | (2       | 7        | 16       | ₹5        | (3       | θ         |
| T-89-FR-14                 | 0.1         | 0.08                       | 12      | ⟨3        | 1    | (3        | 0.01   | 0.1        | 3          | 162      | 33      | 0.35   | 0.01         | 0.06         | 39          | 6        | 0.01         | 73       | 0.01  | 9        | .<3       | ₹5        | ₹2       | ⟨2       | 1        | <5        | ₹3       |           |
| ST-89-FR-15                | 1.5         | 3.26                       | 1573    | (3        | 4    | 3         | 0.08   | 3.9        | 155        | 102      | 6690    | >10.00 | 0.63         | 1.84         | 341         | 9        | 0.01         | 77       | 0.05  | 44       | ₹3        | ₹5        | ₹2       | ₹2       | 3        | ₹5        | ⟨3 ′     | 6         |
| ST-89-FR-16                | 2.3         | 3.90                       | 302     | ⟨3        | 2    | ⟨3        | 4.86   | 3. i       | 102        | 64       | 17947   | 9.16   | 0.97         | 2.86         | 611         | 7        | 0.01         | 60       | 0.05  | 62       | ₹3        | ⟨5        | ⟨2       | ⟨2       | 73       | ₹5        | ⟨3       | 17        |
| ST-89-FR-17                | 0.6         | 3.51                       | 164     | ₹3        | 10   | 3         | 0.16   | 3.6        | 176        | 184      |         | >10.00 | 0,58         | 2.29         | 681         | 3        | 0.01         | 112      | 0.02  | 44       | ⟨3        | ₹5        | ⟨2       | ⟨2       | 8        | ₹5        | ₹3       | 6         |
| ST-89-FR-18                | 1.1         | 0.21                       | 154     | ₹3        | 9    | ₹3        | 0.01   | 1.2        | 251        | 134      | 944     | 8.53   | 0.30         | 0.06         | 50          | 4        | 0.01         | 42       | 0.01  | 31       | ⟨3        | ⟨5        | ₹2       | ₹2       | 3        | ⟨5        | ⟨3       |           |
| T <b>-89-</b> FR-19        | 18.4        | 4.26                       | ⟨3      | ⟨3        | 2    | ⟨3        | 0.27   | 16.7       | 353        | 71       | >20000  | >10.00 | 0.60         | 2.19         | 709         | 16       | 0.01         | 86       | 0.01  | 157      | ⟨3        | <5        | ⟨2       | 5        | 3        | ₹5        | ⟨3       | 53        |
| ST-89-VR-01                | 0.2         | 1.22                       | 6       | ₹3        | 2    | ⟨3        | 1.14   | 0.1        | 10         | 219      | 757     | 1.27   | 0.19         | 0.15         | 95          | 8        | 0.02         | 152      | 0.01  | 31       | ₹3        | ₹5        | ⟨2       | 3        | 41       | (5        | ₹3       | 5         |
| ST-89-VR-02                | 0.1         | 2.19                       | ⟨3      | ⟨3        | 1    | ⟨3        | 2.37   | 0.1        | 4          | 65       | 117     | 0.74   | 0.33         | 0.08         | 74          | 2        | 0.02         | 10       | 0.01  | 20       | ⟨3        | ⟨5        | ₹2       | ⟨2       | 20       | ⟨5        | ⟨3       | 3         |
| ST- <b>89-VR-</b> 03       | 0.2         | 0.57                       | 4       | ⟨3        | ι    | <3        | 0.54   | 0.1        | 9          | 214      | 773     | 0.77   | 0.10         | 0.11         | 70          | 9        | 0.01         | 9        | 0.01  | 8        | ₹3        | ₹5        | ₹2       | 4        | 46       | ₹5        | ₹3       |           |
| ST- <b>89</b> -VR-04       | 0.8         | 3.85                       | ⟨3      | ⟨3        | 68   | ⟨3        | 2.32   | 2.1        | 42         | 279      | 2214    | 5.23   | 0.49         | 5.0B         | 995         | 2        | 0.01         | 117      | 0.03  | 25       | ₹3        | ₹5        | (2       | 3        | 51       | ₹5        | ⟨3       | 7         |
| ST-89-YT-01                | 0.2         | 3.70                       | ⟨3      | (3        | 92   | ₹3        | 0.55   | 1.7        | - 30       | 100      | 134     | 5.25   | 0.26         | 1.91         | 1593        | 3        | 0.01         | 49       | 0.04  | 16       | ⟨3        | ₹5        | ⟨2       | ₹2       | 16       | ₹5        | ⟨3       | 12        |
| IT- <b>B9-V</b> T-02       | 0.1         | 3.83                       | ₹3      | (3        | 43   | ⟨3        | 0.66   | 1.5        | 34         | 115      | 174     | 5.32   | 0.28         | 2.42         | 1035        | 2        | 0.01         | 58       | 0.05  | 20       | ₹3        | ₹5        | ₹2       | 4        | 17       | ₹5        | ₹3       | 9         |
| ST-89-VT-03                | 0.1         | 3.47                       | (3      | (3        | 41   | (3        | 1.01   | 1.1        | 28         | 86       | 101     | 4.53   | 0.30         | 1.37         | 996         | 2        | 0.02         | 39       | 0.04  | 20       | ⟨3        | ⟨5        | ⟨2       | 7        | 26       | ₹5        | ⟨3       | 7         |
| liniaum Detection          | 0.1         | 0.01                       | 3       | 3         | 1    | 3         | 0.01   | 0.1        | 1          | 1        | j       | 0.01   | 0.01         | 0.01         | 1           | 1        | 0.01         | 1        | 0.01  | 2        | 3         | 5         | 2        | 2        | 1        | 5         | . 3      |           |
| Maximum Detection          | 50.0        | 10.00                      | 2000    | 100       | 1000 | 1000      | 10.00  | 1000.0     | 20000      | 1000     | 20000   | 10.00  | 10.00        | 10.00        | 20000       | 1000     | 10.00        | 20000    | 10.00 | 20000    | 100       | 100       | 2000     | 1000     | 10000    | 100       | 1000     | 2000      |

ANOMALOUS RESULTS:
FURTHER ANALYSES
BY ALTERNATE
METHODS SUGGESTED



BRANCH OFFICES PASADENA, NFLD. BATHURST, N.B. MISSISSAUGA, ONT. RENO, NEVADA, U.S.A.

# ASSAY ANALYTICAL REPORT

CLIENT: ASHWORTH EXPLORATION LTD.

DATE: April 14 1989

ADDRESS: 1010 - 789 W. Pender Street

REPORT#: 890166 AA

: Vancouver, B.C. : V6C 1H2

JOB#: 890166

PROJECT#: 275

SAMPLES ARRIVED: April 12 1989

REPORT COMPLETED: April 14 1989

ANALYSED FOR: Cu Au

INVOICE#: 890166 NA

TOTAL SAMPLES: 17

REJECTS/PULPS: 90 DAYS/1 YR

SAMPLE TYPE: 17 ROCK PULPS

SAMPLES FROM: VGC FILE 890164

COPY SENT TO: ASHWORTH EXPLORATION LTD.

PREPARED FOR: MR. PETER LERICHE

ANALYSED BY: VG

VGC Staff

SIGNED:

GENERAL REMARK: None



BRANCH OFFICES PASADENA, NFLD. BATHURST, N.B. MISSISSAUGA, ONT. RENO, NEVADA, U.S.A.

| REPORT NUMBER: 890166 AA | JOB NUMBER: 890166 | ASHMORTH EXPLORATION LTD. | PAGE | 1 | OF |  |
|--------------------------|--------------------|---------------------------|------|---|----|--|
| SAMPLE #                 | Cu<br>%            | Au<br>oz/st               |      |   |    |  |
| ST-89-FR-01              | 1.35               |                           |      |   |    |  |
| ST-89-FR-02              | .97                |                           |      |   |    |  |
| ST-89-FR-03              | .63                |                           |      |   |    |  |
| ST-89-FR-04              | 2.51               |                           |      |   |    |  |
| ST-89-FR-05              | 4.73               |                           |      |   |    |  |
| ST-89-FR-06              | 1.15               |                           |      |   |    |  |
| ST-89-FR-07              | .82                | ·                         |      |   |    |  |
| ST-89-FR-08              | .90                |                           |      |   |    |  |
| ST-89-FR-09              | 13.00              | ÷-                        |      |   |    |  |
| <b>8T-</b> 89-FR-10      | 1.54               | <b></b>                   |      | • |    |  |
| ST-89-FR-11              | .43                |                           |      |   |    |  |
| ST-89-FR-13              | digit dans         | .068                      |      |   |    |  |
| ST-89-FR-15              | .85                | .048                      |      |   |    |  |
| ST-89-FR-16              | 1.97               |                           |      |   |    |  |
| ST-89-FR-17              | .51                | · ·                       |      |   |    |  |
| ST-89-FR-19              | 10.80              |                           |      |   |    |  |
| ST-89-VR-04              | .31                | <del></del>               |      |   |    |  |
|                          |                    |                           |      |   |    |  |

DETECTION LIMIT
1 Troy oz/short ton = 34.28 ppm

.O1 1 ppm = 0.0001% .005

ppm = parts per million

< = less than

signed:

Jasme C Warg

# APPENDIX C

ANALYTICAL TECHNIQUES



BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A.

January 16 1989

TO:

Peter Leriche

ASHWORTH EXPLORATION LTD. 718 - 789 West Pender St. Vancouver, B.C. V6C 1H2

FROM:

Vangeochem Lab Limited

1988 Triumph Street

Vancouver, British Columbia

V5L 1K5

SUBJECT:

Analytical procedure used to determine gold by fire assay method and detect by atomic absorption

spectrophotometry in geological samples.

## 1. Method of Sample Preparation

- (a) Geochemical soil, silt or rock samples were received at the laboratory in high wet-strength, 4" x 6", Kraft paper bags. Rock samples would be received in poly ore bags.
- (b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.
- (c) Dried rock samples were crushed using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for subsequent analyses.

#### 2. Method of Extraction

- (a) 20.0 to 30.0 grams of the pulp samples were used. Samples were weighed out using a top-loading balance and deposited into individual fusion pots.
- (b) A flux of litharge, soda ash, silica, borax, and, either flour or potassium nitrite is added. The samples are then fused at 1900 degrees Farenhiet to form a lead "button".
- (c) The gold is extracted by cupellation and parted with diluted nitric acid.



BRANCH OFFICES PASADENA, NFLD. BATHURST, N.B. MISSISSAUGA, ONT. RENO, NEVADA, U.S.A.

(d) The gold bead is retained for subsequent measurement.

# 3. Method of Detection

- (a) The gold bead is dissolved by boiling with conentrated aqua regia solution in hot water bath.
- (b) The detection of gold was performed with a Techtron model AA5 Atomic Absorption Spectrophotometer with a gold hollow cathode lamp. The results were read out on a strip chart recorder. The gold values, in parts per billion, were calculated by comparing them with a set of known gold standards.

### 4. Analysts

The analyses were supervised or determined by Mr. Conway Chun or Mr. David Chiu and his laboratory staff.

David Chiu

VANGEOCHEM LAB LIMITED



BRANCH OFFICES PASADENA, NFLD. BATHURST, N.B. MISSISSAUGA, ONT. RENO, NEVADA, U.S.A.

#### January 16 1989

TO:

Peter Leriche

ASHWORTH EXPLORATION LTD. 718 - 789 West Pender St. Vancouver, B.C. V6C 1H2

FROM:

Vangeochem Lab Limited 1988 Triumph Street

Vancouver, British Columbia

V5L 1K5

SUBJECT:

Analytical procedure used to determine hot acid soluble for 28 element scan by Inductively Coupled Plasma Spectrophotometry in geochemical silt and soil samples.

#### 1. Method of Sample Preparation

- (a) Geochemical soil, silt or rock samples were received at the laboratory in high wet-strength, 4" x 6", Kraft paper bags. Rock samples would be received in poly ore bags.
- (b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.
- (c) Dried rock samples were crushed using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for subsequent analyses.

#### 2. Method of Digestion

- (a) 0.50 gram portions of the minus 80-mesh samples were used. Samples were weighed out using an electronic balance.
- (b) Samples were digested with a 5 ml solution of HCL:HNO3:H20 in the ratio of 3:1:2 in a 95 degree Celsius water bath for 90 minutes.
- (c) The digested samples are then removed from the bath and bulked up to 10 ml total volume with dimineralized water and thoroughly mixed.



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### 3. Method of Analyses

The ICP analyses elements were determined by using a Jarrel-Ash ICAP model 9000 directly reading the spectrophotometric emissions. All major matrix and trace elements are interelement corrected. All data are subsequently stored onto disk.

# 4. Analysts

The analyses were supervised or determined by either Mr. Eddie Tang, and, the laboratory staff.

Eddie Tang

VANGEOCHEM LAB LIMITED

BRANCH OFFICES
PASADENA, NFLD.
BATHURST, N.B.
MISSISSAUGA, ONT.
RENO, NEVADA, U.S.A.

March 02, 1989

TO:

Peter Leriche

ASHWORTH EXPLORATION LTD. 718 - 789 West Pender St. Vancouver, B.C. V6C 1H2

FROM:

Vangeochem Lab Limited

1988 Triumph St.

Vancouver, British Columbia

V7L 1K5

SUBJECT: Analytical procedure used to determine concentrations of Cu, Pb and Zn in geochemical soil and rock samples.

#### 1. Method of Sample Preparation

- (a) Geochemical soil, silt or rock samples were received at the laboratory in high wet-strength, 4" x 6", Kraft paper bags. Rock samples would be received in poly ore bags.
- (b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.
- (c) Dried rock samples were crushed using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for subsequent analyses.

#### 2. Method of Digestion

- (a) 0.20 gram portions of the pulverized samples were used. Samples were weighed out using an electronic balance.
- (b) Samples were heated on a hot plate in a multi-acid solution of concentrated HCL, HNO3, HCLO4 and HF until HCLO4 fumes persisted. Samples were then reheated in a 10% HCL solution to redissolve any soluble matter.
- (c) A minimum of 5000 ppm solution of AlCO3 was added to each sample when Mo analyses were required. Digested samples were diluted with demineralized water to a fixed volume. The samples were agitated to obtain a homogeneous solution.



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#### 3. Method of Analyses

Cu, Pb, Zn, and Mo concentrations were determined using a Techtron Atomic Absorption Spectrophotometer Model AA5 with their respective hollow cathode lamps. The digested samples were directly aspirated into an air and acetylene mixture flame. The results, in percentage were calculated by comparing them to a set of standards used to calibrate the atomic absorption units.

### 4. Background Correction

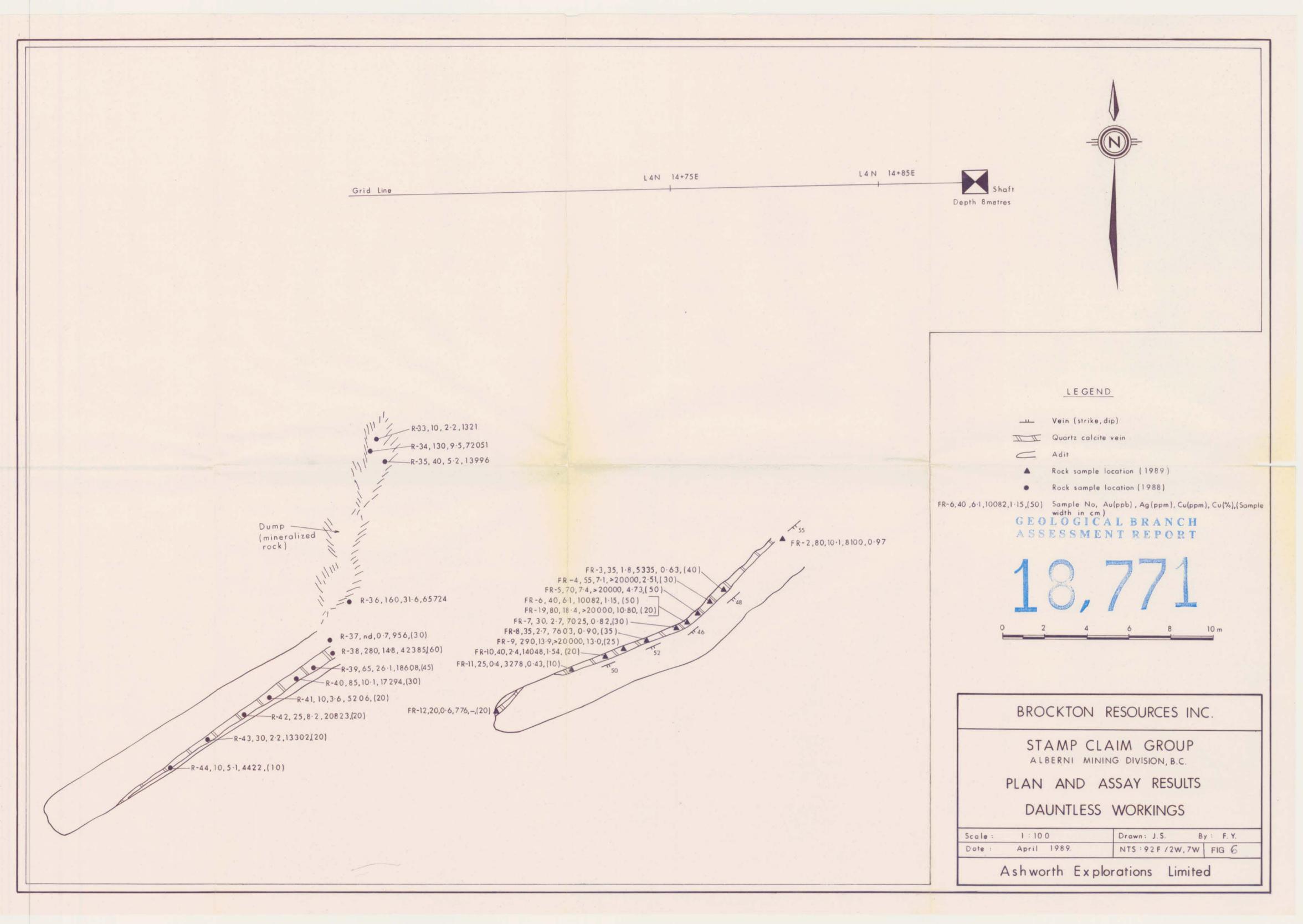
A hydrogen continuum lamp was used to correct the Mo background interferences.

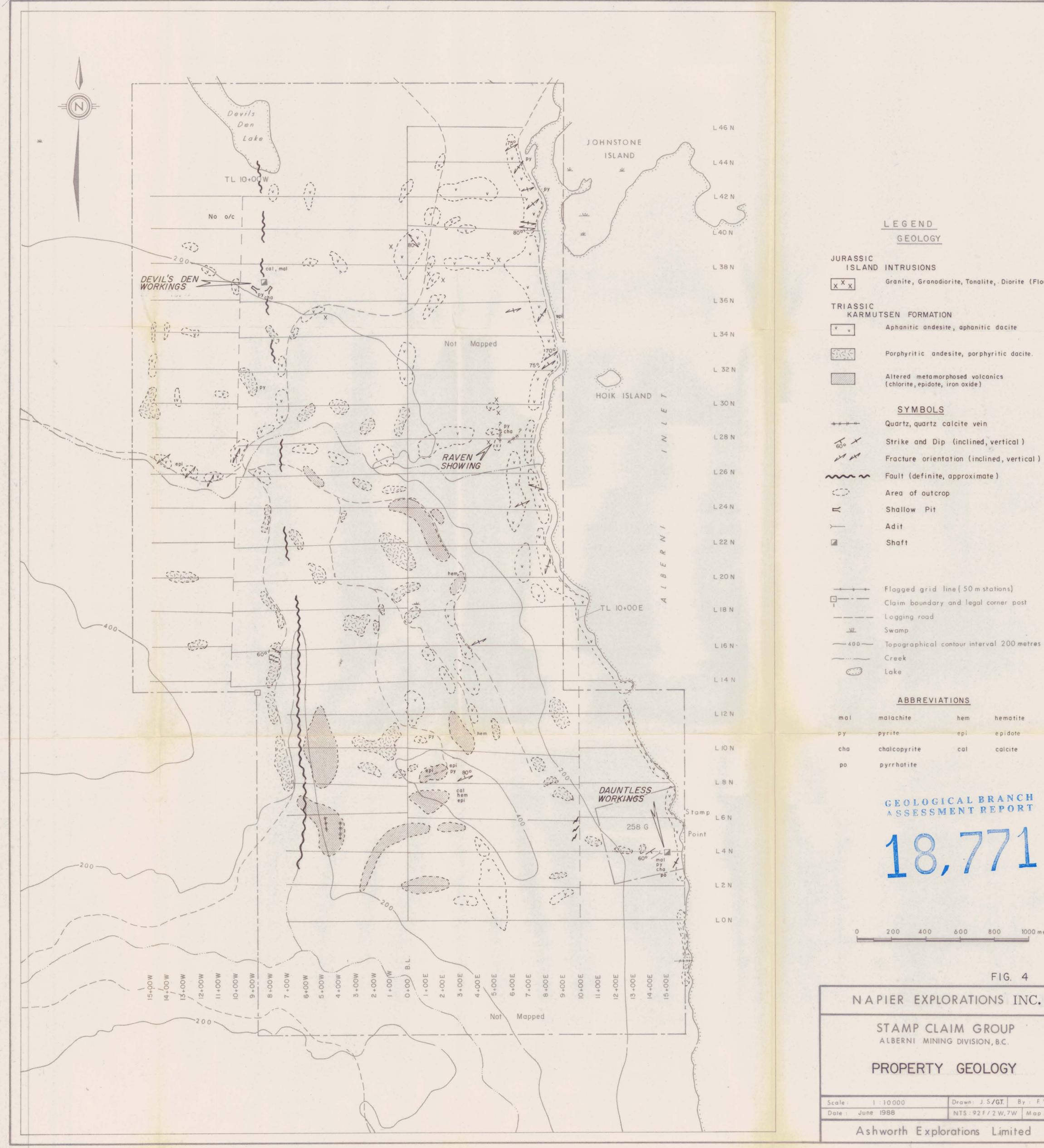
#### 5. Analysts

The analyses were supervised or determined by either Mr. Conway Chun or Mr. Eddie Tang, and, the laboratory staff.

Eddie Tang

VANGEOCHEM LAB LIMITED





Granite, Granodiorite, Tonalite, Diorite (Float)

Porphyritic andesite, porphyritic dacite.

Altered metamorphosed volcanics

Strike and Dip (inclined, vertical)

Fault (definite, approximate)

Claim boundary and legal corner post

Topographical contour interval 200 metres

| mai | malachite    | hem | hematite  |
|-----|--------------|-----|-----------|
| ру  | pyrite       | epi | e pi dote |
| cha | chalcopyrite | cal | calcite   |
| po  | pyrrhotite   |     |           |

GEOLOGICAL BRANCH

18,771

600 800 1000 metres

FIG. 4

NAPIER EXPLORATIONS INC.

STAMP CLAIM GROUP ALBERNI MINING DIVISION, B.C.

PROPERTY GEOLOGY

Drawn: J. S/GT. By : F.Y. NT5:92F/2W,7W Map:

Ashworth Explorations Limited

